AUGUST 16, 1958
VOL. 155 — NO. 7

# Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

## TRAFFIC IS TERRIFIC

John Murphy, telephone traffic analyst in training with the California Interstate Telephone Co., enjoys his work. The only man in the department, he is shown with co-workers, Sue Popineau (standing), assistant chief operator; Virginia Polk (left) and Elsie Bender.

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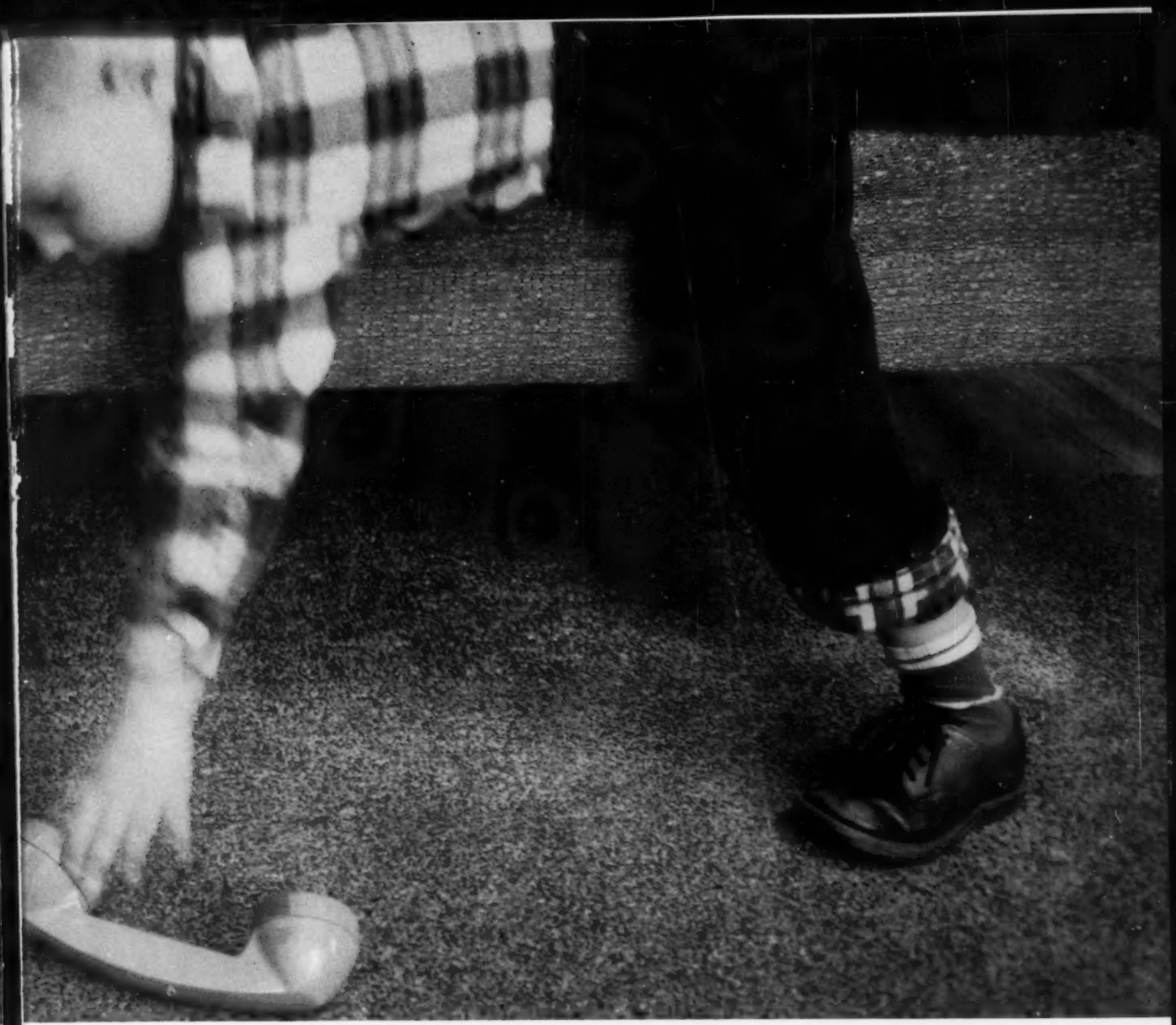

take lots of abuse...dial mechanism is rigidly mounted to keep moving parts perfectly aligned under rough usage. Rugged engineering keeps your maintenance costs to a bare minimum. Another reason for standardizing on Stromberg-Carlson instruments.

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AERIAL AND DUCT TYPE

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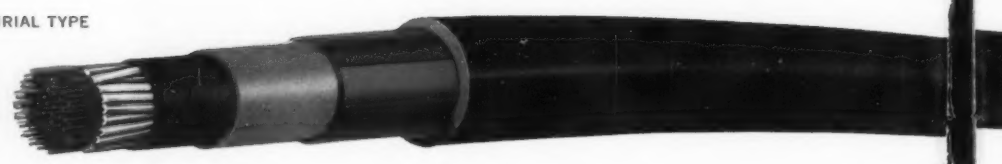

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# A New Look

## *Communications*

Beginning with the design and construction of a switchboard for St. Louis, Missouri, Kellogg has been serving the Telephone Industry for more than 60 years. Today Kellogg, the "Communications Division of ITT," is the largest domestic division of International Telephone & Telegraph Corporation.

This represents further tangible evidence that *communications* is our business — and ITT's. For you in the Independent Telephone Industry, it re-emphasizes the fact that all of ITT's far-flung facilities and resources are always at our disposal — and yours.

Let's take a new look at Kellogg today—and count off the resources and skills that make it up, for from these resources will come developments that will help change telephone engineering as much, and even more, in the next 60 years as Kellogg developments have done in the past.

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**PLANTS:** Chicago; Corinth, Miss.; Kansas City, Mo.; Clifton, N. J.; Raleigh, N. C.

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**FOR THE TELEPHONE INDUSTRY:** relays • cables • condensers • jacks telephones • manual and dial switching systems • carrier systems • microwave

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## *Division of ITT*

**FOR INDUSTRY:** Systems for data transmission over physical and carrier-derived circuits • manual and automatic switching systems for computers and industrial control • electro-mechanical wire communications components and assemblies • design modifications on transformers, inductors, filter and other audio equipment.

**FOR THE MILITARY:** Primary contracts for ground communications for Atlas Air Force ICBM • participant in SAGE, continental air defense system • supplier for BOMARC, intercept missile.

As in the past, our entire resources and experience will always be at the service of the Independent Telephone Industry.

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# FLASHES AND PLUGS

**THE 12 COMMANDMENTS.** The following "Executive Instructions No. 15" were sent TELEPHONY by the Florida Telephone Corp. plant department. These rules governing employment in their office state that:

(1) All employes caught jumping out of the window or down the elevator shaft before closing time will be reported to the personnel supervisor.

(2) A schedule is now being prepared in the personnel office for employes sick leave. Please consult schedule for your turn to be sick. Anyone caught being sick out of turn will be subject to the disciplinary committee.

(3) In case of fire employes on the second and fourth floor will step out of the window, walk one block north and turn right. Employes on first floor will walk up to second floor and do likewise. This rule should be strictly observed for your own welfare.

(4) When the "Big Boss" walks through the building, the first employe to see him will notify the personnel, the personnel will then rise, place their hands over their hearts, and whistle "Hail the Chief" through their teeth.

(5) Employes will be allowed one drink of water or one Coca Cola each day at specified times. Consult the schedule for your time to take a drink. Employes who have had salted herring or salted mackerel for breakfast will be allowed one additional drink, provided they have a note from their mother to this effect.

(6) Employes desiring to leave the room will first obtain permission from their immediate supervisor by raising one or two fingers as the case may be.

(7) Girl employes will not primp, flirt or gossip (except in the immediate presence of the boss) during working hours. Any girl caught doing this will be required to stay after hours and write, "I have been a bad girl" 400 times.

(8) Employes expecting to live to retirement age are requested to turn in their resignations immediately. Administration costs have absorbed all of this fund which makes it impossible to pay any pensions.

(9) Employes are forbidden to chew gum except at specified times. Persons caught chewing gum at other times will be sent to the hospital and have their teeth extracted. If caught a second time, they will be dealt with severely.

(10) Do not stick gum under tables or desk tops; on the wall or ceiling or in the boss's chair. Either stick it behind your ear or swallow it.

(11) Personnel who go insane within 3 months after beginning work will notify the personnel supervisor at once in order that they may receive their grade, raises and promotion accordingly.

(12) The employes will please refrain from nailing the boss's shoes to the floor while he is asleep. . . .

•

**HEAVENLY DAZE.** Miriam Hedrick, switchboard operator at the Phoenix, Ariz. City Hall, became flustered by a heavy load of incoming calls one day. She answered one caller by saying, "City heaven."

"Well, dear," responded the caller, "if this is city heaven, connect me with one of the angels up in planning and zoning."

**CHANGE OF ADDRESS**

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.


# Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
*Since 1901*

**August 16, 1958**


CONTENTS


IN THE NATION'S CAPITAL ..... 19
*By Francis X Welch*

ABC OF THE TELEPHONE—Part 85 ..... 21
*By Frank E. Lee*

MECHANIZED BILLING SAVES TIME AND CLERICAL COSTS ..... 24
*By Morris Jones*

THE PLANT MAN'S NOTEBOOK ..... 26
*By Ray Blain*

PLANT MAN'S QUIZ ..... 28
*By Ray Blain*

THE OPERATOR'S CORNER ..... 30
*By Mayme Workman*

TELEPHONY'S TRAFFIC ENGINEERING HANDBOOK ..... 34
*By Gilbert R. Brackett*

REA APPROVES FIVE LOANS TOTALING $1,386,000 44

DIAL TELEPHONES RELIEVE TRAFFIC OVERLOAD IN TAIWAN ..... 46

COURTS AND COMMISSIONS ..... 48

1958-59 CONVENTION CALENDAR ..... 54

HELPFUL LITERATURE ..... 57

NEWS ON NEW PRODUCTS ..... 60



H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • LORRAINE M. QUINN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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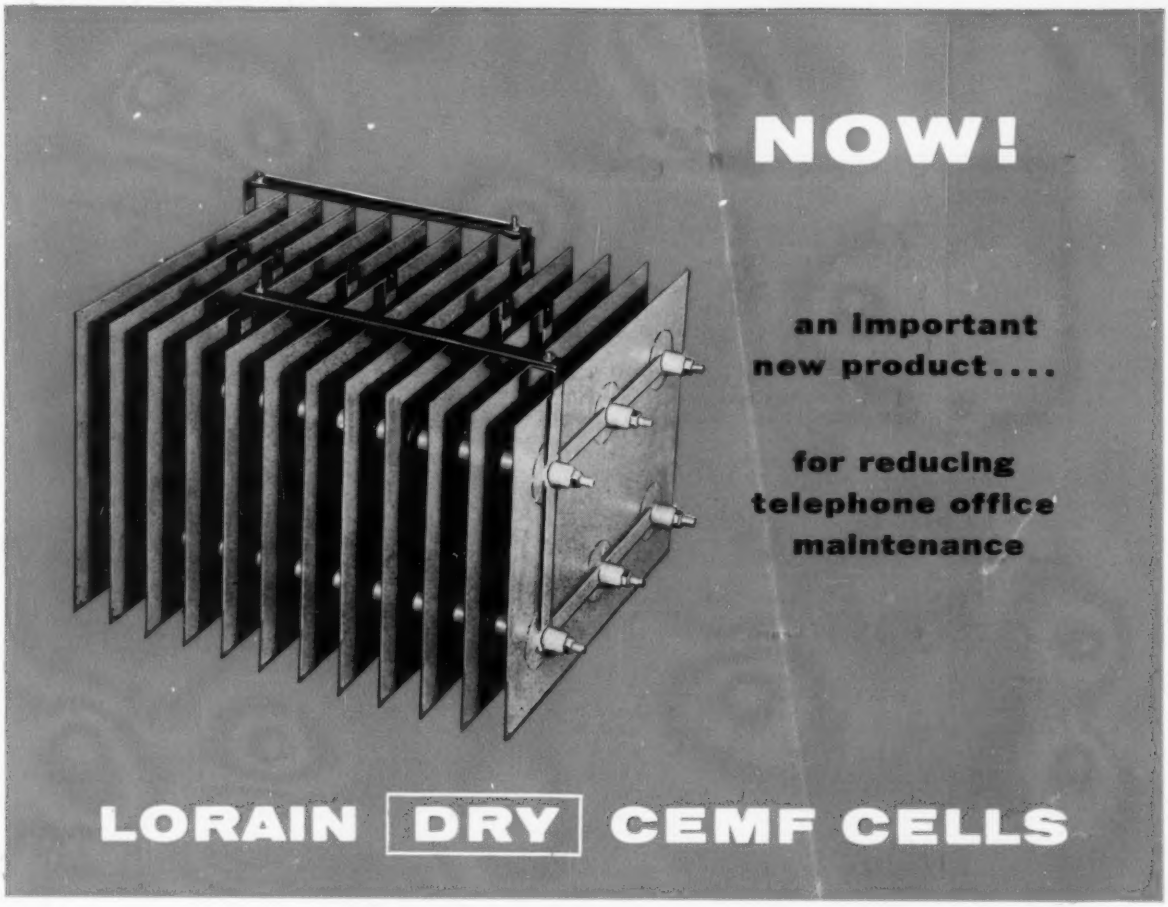


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Lorain Dry CEMF Cells are selenium covered metal plates, specially treated so their internal resistance decreases rapidly as the current flow through them increases, making them effective as voltage regulators. The amount of voltage drop is determined by the number of plates connected in series. Bulletin 176 lists representative sizes; assemblies to meet individual specifications are readily made to order. Specific recommendations will be made upon receipt of the current and voltage limits to be met, and the preferred mounting arrangement.

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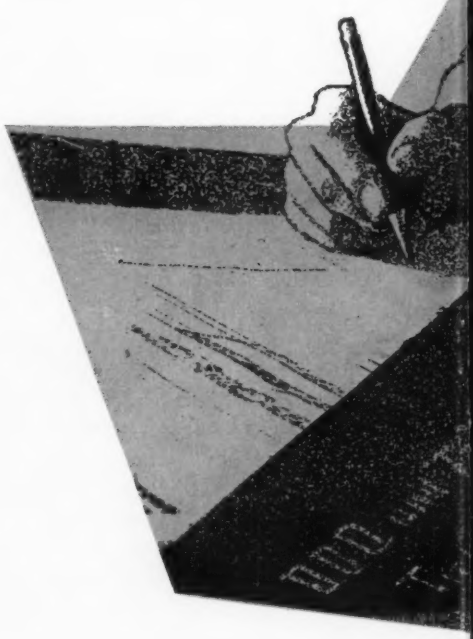
From the
Equipment Engineer's
Point of View-

# Leich's Dial System Is Ready for Direct Distance Dialing and Toll Ticketing Needs



An equipment engineer's job is to plan for the future needs of your telephone company. That's why he can recommend the Leich Dial System with confidence. The Leich Dial System is ready now to handle your present or future direct distance dialing and toll ticketing needs.

You can meet such requirements economically—without the expense of completely overhauling your equipment—by using Leich manual or semi-automatic line identification equipment. It properly identifies the calling line from the Leich Dial System in cases where the distant office has toll ticketing equipment.

Leich Intercept Facilities are also available.

By adding Leich Intercept Facilities to Leich dial switchboards now in service, you meet your current Direct Distance Dialing intercept requirements. Main lines, party lines, and vacant levels may be intercepted by operators or message repeaters.

Contact Leich for more details.

**Write for the Leich Dial System catalog.**

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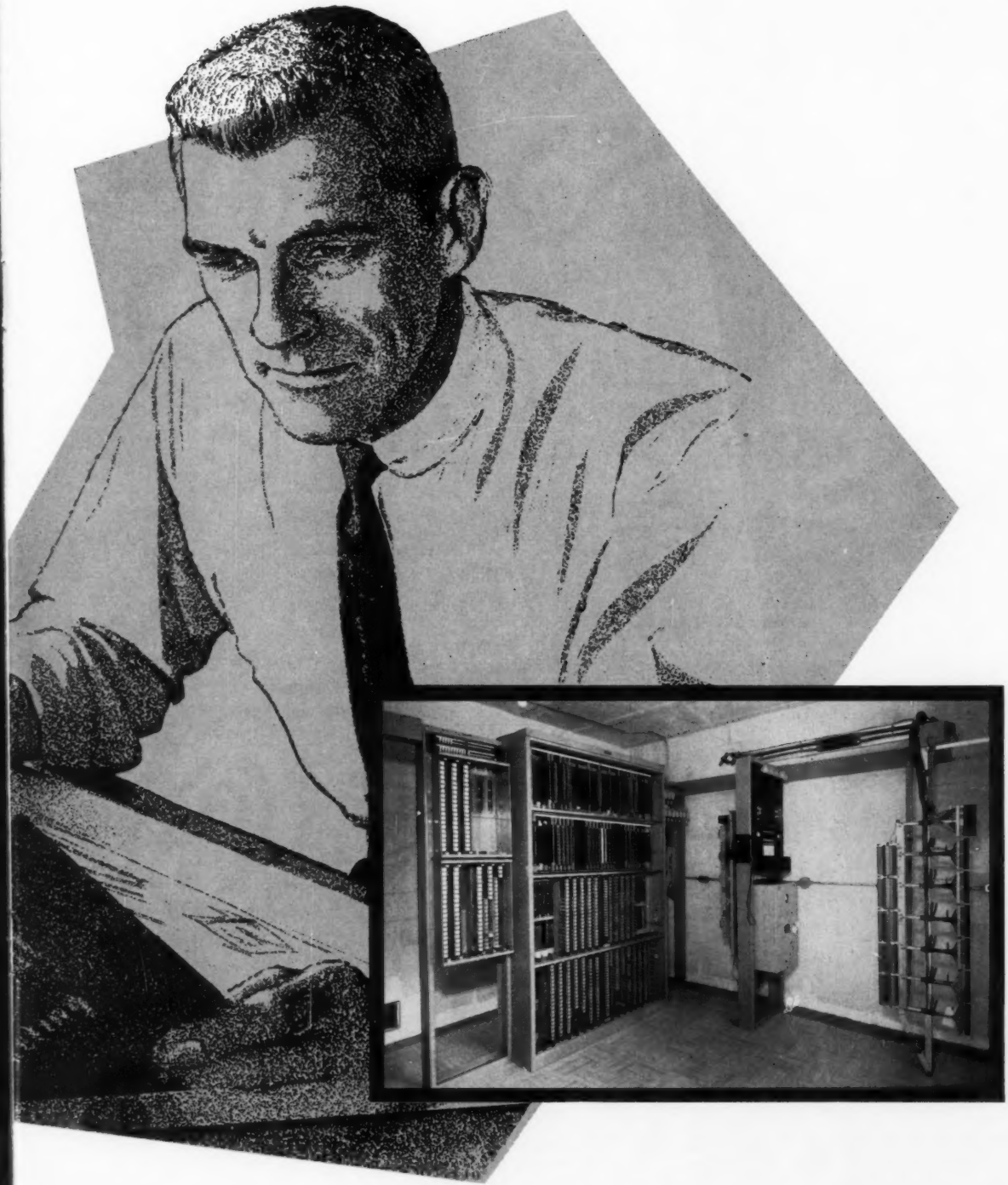
Subsidiary of GENERAL TELEPHONE



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*Choose from 5 models—to save money—to make money!*

With a Recorder-Announcer, you make intercept announcements and give public service messages, *automatically!* You save on labor costs because operators are relieved for other duties. And, you can make an announcer pay for itself quickly by selling advertising time to sponsors. Automatic Recorder-Announcers save money, and make money for you.

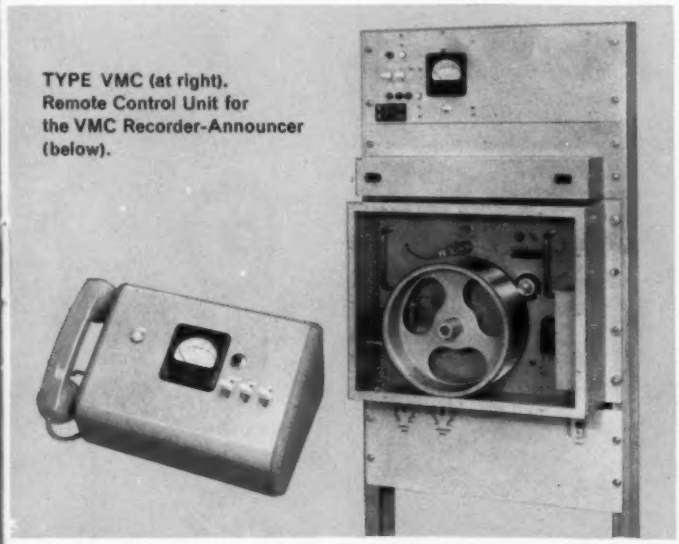
Automatic Electric offers a complete line of Recorder-Announcers for giving any type of message. These precision-engineered machines use magnetic recorders for lifelike reproduction. Messages are free from annoying breaks or changes of pitch. Current consumption is low, even when an announcer is run continuously.

One or more of the announcers shown here would be ideal for your exchange. For further details, write: *Automatic Electric Sales Corporation, Northlake, Illinois. Or call, Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto, 16.*

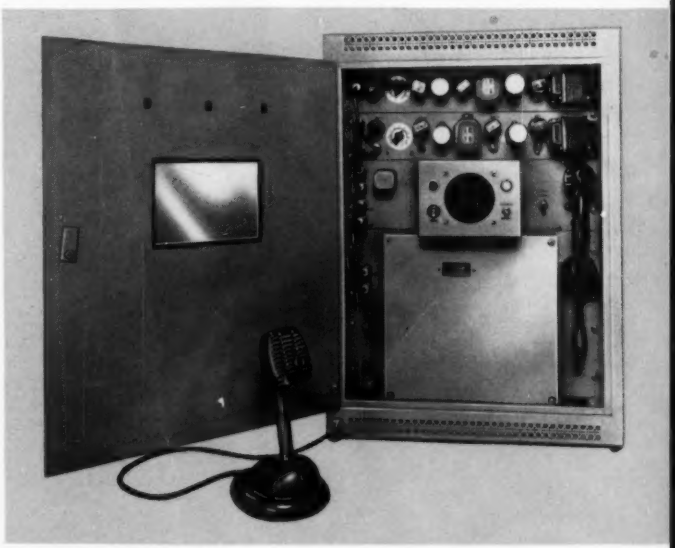
**TIME ANNOUNCER** automatically broadcasts the correct time every 15 seconds with a message between announcements. Some telephone companies use the "between" time for giving public service messages. Others sell it for sponsored commercial messages. Any way you use it, the Automatic Time Announcer is a revenue-builder for you!

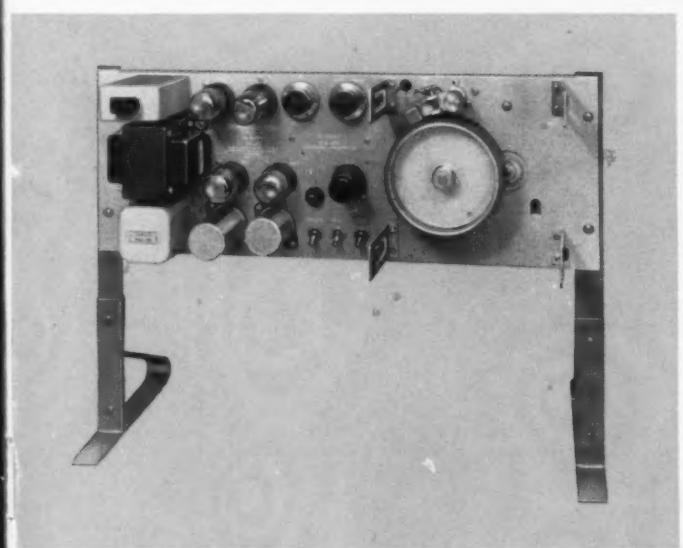
**TYPE VMC** gives any message up to four minutes long: weather forecasts, paid commercials, public service messages or a combination of any of these. Anyone can record the announcement from anywhere (even from another city by remote control). Old message erased and a new one recorded in one step.

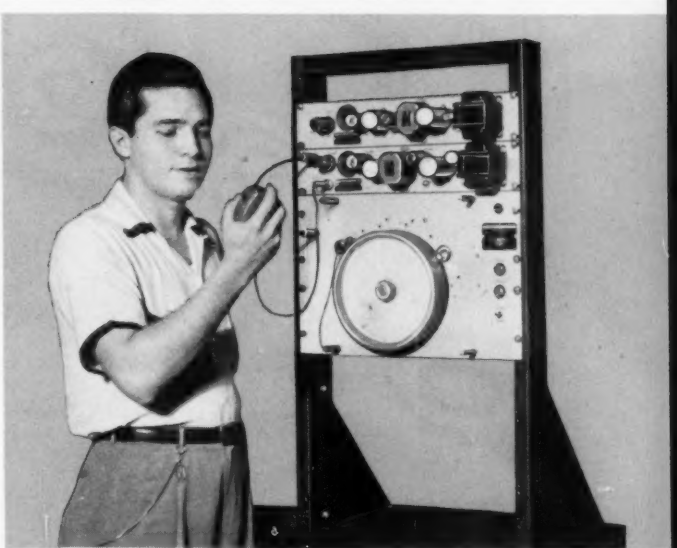
**TYPE FML** is designed to give a single message (either 6½ or 12 seconds long). Telephone companies use this machine to inform volunteer firemen of the location of a fire. You might also find it useful for announcing theater and train schedules. And, there are a dozen other uses for this Recorder-Announcer.



TYPE VMC (at right). Remote Control Unit for the VMC Recorder-Announcer (below).







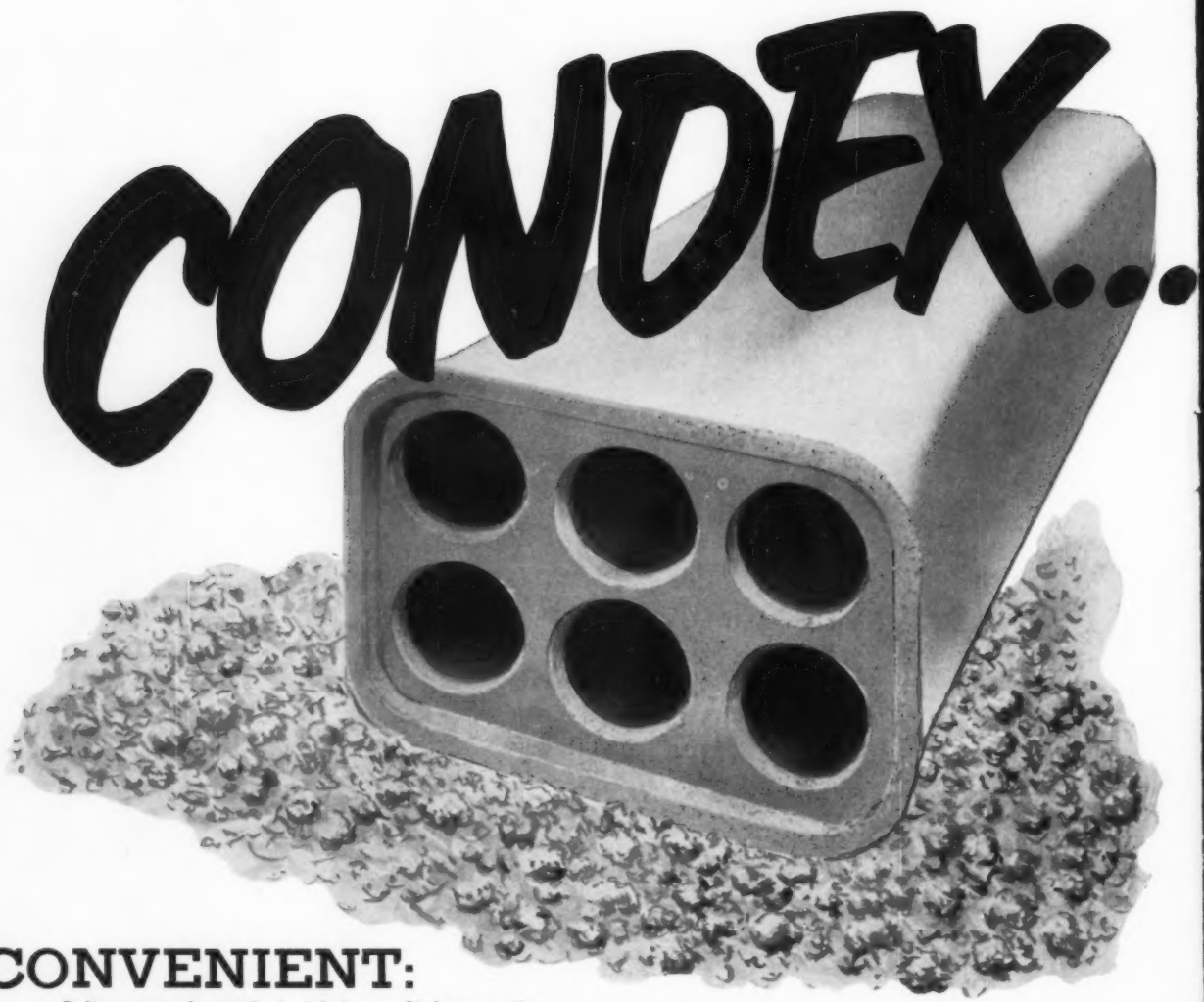
**TYPE SCC** This compact, low-cost announcer gives any message, 12 seconds long. Ideal for intercept service when only one announcement is needed (or, you can profitably use two SCC machines for two different messages). Can also be used for giving commercial announcements.

**TYPE MCF** is used for repetitive services such as interception of calls to disconnected lines, dead levels, etc. Provides up to five separate messages. Initially, you buy equipment for only the number of channels you need. Other channels can be added at any time.

# AUTOMATIC ELECTRIC

Subsidiary of GENERAL TELEPHONE

# CONDEX...



## CONVENIENT:

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Condex may be installed in any weather, even in trenches holding water. Ditches can be covered as soon as installation is made. Due to low breakage factor, jobs can be estimated more accurately.

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Smooth bore is obtained by mechanical honing.

## ECONOMICAL:

Multiple-Duct Concrete Conduit is manufactured with a bell-end joint, eliminating the use of plastic or mortar bandages with dowel pins, for joining. A joint sealing compound, applied with a pressure gun, is all that is needed and cost of this joining operation is less than 3½¢ per trench foot for both material and labor.

Single crews have installed 1,600 to 1,800 trench feet of conduit per 8 hour day, with two to three less men than with other types which require mortar bandage joints.

Breakage factor of concrete conduit is less than 1%, due to strength of product.

## For information — call or write your local licensee, or the parent company

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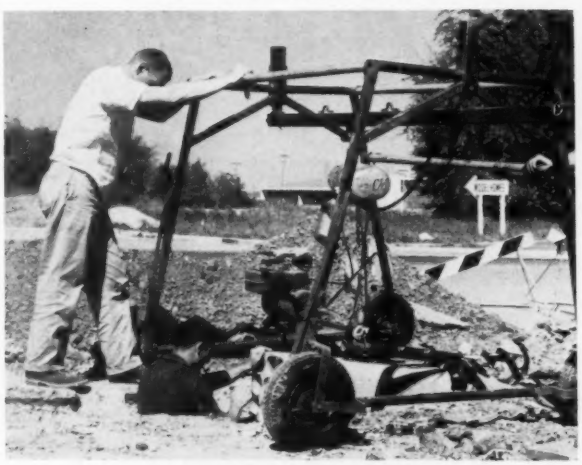
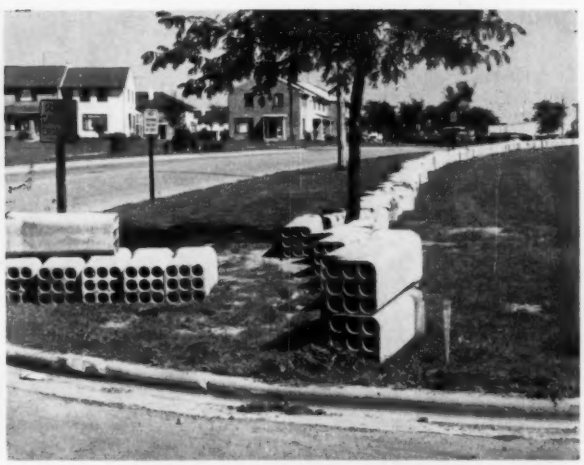
SPOTTING OF CONDUIT ALONG RIGHT-OF-WAY ADJACENT TO PROPOSED TRENCH.

PLACING 12 DUCT MCC FORMATION



CONDUIT—MECHANICAL PLACING



9 DUCT FORMATION ON JOB SITE

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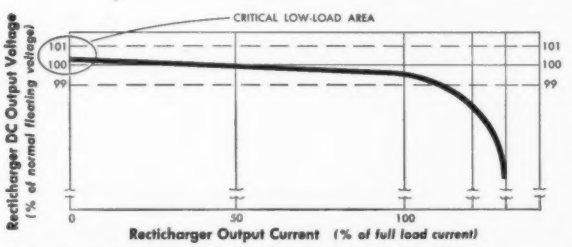
# BUT NOT FOR YOUR BATTERIES

Midnight to 6 A.M.—hours that may be stealing *years* from the life of your batteries. During these low-load periods, the output of your battery chargers may crawl up, overcharging batteries, causing gassing, sharply reducing battery life.

Not so—definitely not—with new, vastly improved Raytheon Recticharger® battery chargers. These battery chargers provide constant voltage within ±1% from full load right *down to no load*. They hold the mark even with input voltage variations of ±10%. Result—far less battery maintenance; far greater battery life.

New Rectichargers have a host of other advantages; find out more about them by writing Dept. 6120.




VOLTAGE CURVE IS FLAT from no load to full load with the Recticharger. Note automatic current limiting for overload protection.

**NEW 48 VOLT RECTICHARGERS**

- No audible hum
- Automatic compensation for rectifier aging
- No moving parts or vacuum tubes
- Models for 3 to 400 amperes

**RAYTHEON MANUFACTURING COMPANY**

**Commercial Equipment Division, Waltham 54, Mass.**

RAYTHEON

*Excellence in Electronics*

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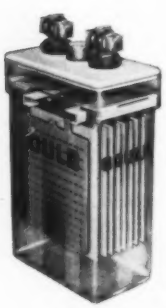
Graflex Prize-Winning Photo by Josef Scaylea

# Battery Users Report "Smoother Sailing" *with* **gould** *batteries*



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GOULD PLANTÉ
The Aristocrat of
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It's true! Gould's files bulge with case histories of battery users who have discovered exceptional economy and dependability in Gould Batteries. The reasons are simple: (1) Gould's battery research is the most *thorough* in the world; (2) Gould's manufacturing techniques have been patiently developed for the utmost precision and control; and (3) Gould's large field engineering staff makes routine inspection trips to insure that your batteries are getting the proper care. Want more reasons? . . . write for booklet ". . . so you're going to buy an industrial battery."

Gould-National Batteries, Inc., Trenton, N. J.

*More Power to you from Gould*

*Always Use Gould-National Automobile and Truck Batteries*

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# IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

**Congress ready to quit "without much done for or against anything." . . . passes small business loan bill. NTCA directors meet. FCC directed by House committee to draw up "code of ethics." . . . SEC and FPC adopt voluntary code.**

AS THESE lines are written, the 85th Congress approaches its final week of the session, amidst a sweltering August in the Nation's Capital. This is the season to watch out for fast last-minute plays, "sleeper legislation" and other sudden moves calculated to upset all previous dope. Even the adjourment date could blow up at the last minute.

But barring sensational final upsets, it looks as if the 85th Congress will go out like a lamb, without much done for or against anything. For the telephone industry this includes the following developments, chiefly negative:

(1) No change in corporate taxes.
(2) No change in excise taxes.
(3) No expiration date for excise taxes.
(4) No change in personal income taxes.
(5) No change in the exemption for operators' wages at small (750 stations) telephone exchanges.
(6) No real labor reform legislation.
(7) No change in REA interest rates.
(8) No change in REA control by the Agriculture Department.
(9) Some interesting small business loan legislation (explained below) which could be helpful to small telephone companies.
(10) No change in the security registration exemption (with the SEC—Securities and Exchange Commission) for small telephone companies.

### *Small Business Aid*

It was a surprise to this writer when Congress did finally wake up at the last-minute and pull the small business loan bill out of a congressional pigeonhole where it had been expected to die with the session. Compromise legislation to permit 250 million dollars in government funds to be invested in small businesses passed both the Senate and the House on Aug. 7 by voice votes. The money would be funneled to the small firms through intermediary privately owned investments. The government's return would be limited to a reasonable interest rate on money loaned to the investment corporations.

The bill was a compromise between differing Senate and House bills. At this writing it seems certain of being signed into law by the President. The administration already has asked Congress to appropriate 50 million dollars so the program can get started this year.

The program was believed by some lawmakers to represent the most far-reaching step ever taken by Congress to help small business. Senator Sparkman (D., Ala.) said it marked a "new day for small business." Sponsors of the bill said the new program was necessary to promote a flow of investment capital to small business. It was designed to answer complaints that small business has considerably more difficulty than big business in obtaining risk capital. The program would be administered by the Small Business Administration. It would be authorized to loan investment corporations.

For three years it would be permitted to issue charters, itself, to corporations in states where laws do not provide for such organizations. The investment corporations would be required to raise a minimum of $300,000 in paid-in capital, but they would borrow half of that from the Small Business Administration. Then, they would be eligible to borrow at least $150,000 more, since the legislation would permit Small Business Administration loans equal to half of their paid-in capital.

The bill represents the third step undertaken by Congress this year to aid small business. Earlier this year it enacted a law making permanent the Small Business Administration which was set up five years ago on a temporary basis to provide loans for small business. Pending in the Senate and apparently assured of passage is a House-passed bill to provide a 260 million dollar program of "fringe benefit" tax relief for small business. Efforts are under way to amend the measure to make the proposed new investment corporations eligible for more favorable tax treatment of losses suffered from investments.

### *NTCA Directors' Meeting*

Last month, the directors for the National Telephone Cooperative Association met in Washington, D. C. Among other things the group was planning for its next annual convention, also to be held in Washington, D. C., on Feb. 6 and 7, 1959. It may be of some interest to commercial telephone companies that the Rural Electrification Administration's administrator, David A. Hamil, spoke to the co-op group on general REA policies.

Among other things, Hamil was asked why more REA loans were not made to new telephone cooperatives as distinguished from commercial telephone companies. Hamil's answer was that he was not getting a correspondingly higher number of applications from co-ops. He put it on the line to them in this manner: "If you know of anyone who does not have telephone service and wants it, let me know and I'll get a man on it right away."

Hamil agreed that REA's engineering requirements could be improved. This statement was also made in response to comment made by the vice president of the co-op association,

Glenn Bergland. Hamil said he would be glad to consider any constructive suggestions for streamlining engineering procedures. But no promises were made that engineering requirements would be changed—with respect to eligibility of loan applications—simply to get more new cooperatives started.

Hamil said that no decision had yet been made to fill the post left vacant last year by the retirement of Jack O'Shaughnessy, former REA assistant administrator for telephone loans. Incidentally, the co-op association directors' meeting was held only a few days before the death of Mr. O'Shaughnessy on July 28 following a long illness. O'Shaughnessy was a native of Louisiana and had been with REA for more than 20 years prior to his retirement last September. He was regarded by many as being the REA staff official who made the greatest contribution to getting the REA telephone loan program off the ground and into successful operation. He was often called "Mr. Telephone" around the REA offices. O'Shaughnessy had been bedridden since last December. He died at Walter Reed Hospital, in Washington, D. C.

Perhaps the main reason why O'Shaughnessy's post has not been filled is that it has reverted to the status of a political appointment. And, with the present administration moving towards the end of its constitutional tenure, the job is not as secure as it would be if it were protected by Civil Service status. That change may be in the works at REA.

In another speech, before a statewide meeting of rural electric editors held also in Washington during July, REA Administrator Hamil went on record—apparently for the first time to this writer's knowledge—in favor of increasing the interest rate for REA loans. Hamil did not suggest that the REA interest rates should be boosted to a point comparable with prevailing commercial bank interest rates. But he did suggest that REA might go back to the interest rate formula used prior to the passage of the Pace Act in December, 1944. It was that law which pegged REA interest rates at 2 per cent, regardless of the cost of money to the government or anybody else.

But, before the Pace Act, REA interest rates were pegged to the cost of money to the federal government on its long-term obligations of 10 years or longer. Hamil's suggestion would not inevitably mean an increase in REA interest rates at all times. It might even mean a drop, if the cost of money to the government dropped, through artificial controls or otherwise, below 2 per cent. At present Uncle Sam is paying a little over 3 per cent interest on long-term obligations and that is the rate of interest that REA loans would have to bear if Hamil's plans were in effect now.

It may surprise some, not familiar with REA's background over the years, to realize that from 1936 to 1944 REA's interest rate was "equal to the average rate of interest payable (by the government) on its obligations, having a maturity of 10 or more years after the dates thereof, issued during the last preceding fiscal year in which any such obligations were issued."

That is the pattern of REA interest payments which Hamil would like to restore, as distinguished from the bills now in Congress to provide for an insured loan program and commercial bank financing for rural cooperatives. Hamil said such bills were "dead as a hammer" and he was right about that. There were seven bills altogether in the House and Senate on the subject of REA rates, but none got acted upon.

### *Codes of Ethics*

Two regulatory commissions have come forward with voluntary codes of ethics; and the Federal Communications Commission has been ordered to come forth with such a voluntary code within six months by the House Subcommittee on Legislative Oversight. The sub-committee's order was in the form of an "interim report" commenting upon the shortcomings of procedure unveiled by its investigation into the FCC, which resulted in the resignation of one commissioner under fire. The code, which the House sub-committee would have the FCC draw up for it, would be aimed at prohibiting the exercise of outside influence on members of the regulatory commission or its staff. It would forbid any person from communicating, directly or indirectly, with any member of the FCC or its staff unless notice of intention is given and an opportunity provided for all parties concerned to sit in on the meeting. In addition, FCC commissioners would have to make a record of every unauthorized communication they receive.

The proposed code would apply to members of Congress, as well as the FCC, although it permits Congressmen to inquire about the status of a particular case. FCC commissioners would be prohibited from accepting fees for speeches or written articles. The President under the code would have authority to fire any commissioner for neglect of duty or malfeasance in office, but for no other reason. The sub-committee's interim report sharply criticized FCC commissioners for fraternizing with representatives of the industries they regulate and for accepting fees and other favors.

The Securities and Exchange Commission (SEC) was one of the two federal commissions which adopted a voluntary code ahead of any congressional committee order to do so. The Federal Power Commission (FPC) was the other. The SEC adopted a voluntary code of ethics which instructs its members to reject any efforts by the White House or Congress to influence their actions. While members are permitted to solicit views of interested persons in a case, they are forbidden to discuss pending cases with persons outside the commission. The new SEC rules of conduct also stipulate that no member or employe of the commission should accept gifts, favors, services, or lavish hospitality from any person with whom he is transacting business on behalf of the United States.

SEC's voluntary canons of ethics have been under consideration for some time. SEC Chairman Edward N. Gadsby said the code did not represent a new set of rules, but was rather a concrete statement of the principles which SEC has always believed applicable. However, the new rules are considerably more stringent than commission rules which have been in effect for many years. An SEC member is not only expected to reject efforts by anyone to affect his independent determination of pending matters, but also ordered to be indifferent to partisan demands, public clamor, or considerations of personal popularity or notoriety, regardless of its source.

The FPC, although not as yet subjected to any serious probing during the House sub-committee hearings, followed the lead of the SEC in adopting a voluntary code. The new FPC code, which covers both commissioners and staff members, starts off with a general warning against any activity which could serve as a possible basis for suspicion of unethical practice.

The canons of the new FPC code forbid commissioners and staff members to discriminate unfairly through the dispensing of special privileges. The acceptance of favors or benefits, which might be construed by reasonable persons as designed to influence the work of the commission's personnel, is forbidden. No private promises are to be made which affect or influence the performance of official duties. Business dealings with the Government involving the personal interest of commission personnel, which might raise a question of conflict of interest, are to be avoided. The canons prohibit the use of confidential information, obtained in the performance of official duties, to make a private profit.

# A B C of the Telephone

*by Frank E. Lee*

THERE ARE two generally accepted ways of applying the spinning wire to an aerial cable. One method is to place the spinning wire as the cable is payed off the reel and raised into position under the strand. The second way is to temporarily raise the cable into position and then follow with the lashing operation. There are advantages to be gained by using either method. Briefly, the first method is somewhat faster. The second method makes possible a better spinning job because the cable can be held under more uniform tension during the spinning operation.

The cable can be lashed as it is raised into position if the terrain and conditions along the pole line will permit a truck or cable trailer to be driven along the lead directly under the span. This means that the lead must be free of trees, signs, fences, and similar obstructions. The ideal situation, of course, is a pole line where there are no obstructions throughout the entire length. Seldom are these ideal conditions found. As a rule, each installation job should be studied to decide if this lashing method is most economical in view of the number of obstructions along the lead that require moving the truck or cable trailer away from a route directly under the messenger.

The general procedures of lashing a cable as it is raised to the pole are as follows:

(1) A reel of cable, mounted on a truck or cable trailer, is taken to the starting point of the cable placing job.

(2) One end of the cable is raised into position and fastened to the pole at the starting point.

(3) A cable placing shoe is hung on the messenger strand and the cable is placed in the shoe, as shown in *Fig. 1*.

(4) A handline or tow line is attached to the cable placing shoe and the shoe is pulled by hand about 4 feet or more along the lead.

(5) The cable spinning machine is placed over the strand and cable and attached either to the cable placing shoe with a suitable tow line, or to the cable trailer with a second tow line.

(6) The spinning wire, already threaded in the cable spinner, is wrapped temporarily around the cable and strand for about two spirals. The spinning operation is ready to proceed after the lashing wire is anchored in place near the pole with a lashing wire clamp.

(7) The cable placing shoe raises the cable to the strand and feeds it into the spinning machine as the cable trailer is towed along the lead. The cable spinner, being towed directly behind the cable placing shoe, as shown in *Fig. 2*, completes the spinning operation.

The method just described results in the fastest cable spinning job. The spinning operation must stop temporarily, of course, at each pole in order that the spinning machine and cable

**PART 85. OUTSIDE PLANT CONSTRUCTION—Section 12. Methods used to fasten aerial cable to messenger strand—continued.**

**Section 1. Planning of additions to outside plant (TELEPHONY, Nov. 17, 1956).**

**Section 2. Laying out the pole line, clearances to be maintained, and grading requirements (TELEPHONY, Nov. 24, 1956).**

**Section 3. Selection, treatment, handling, storage, and gaining of poles (TELEPHONY, Dec. 1, 1956).**

**Section 4. Items of power equipment used in pole line construction and maintenance. Also discussed are depth poles set in various types of soil (TELEPHONY, Dec. 8, 1956).**

**Section 5. Purpose of guy wires and factors involved in their proper placement (TELEPHONY, Feb. 16, 1957).**

**Section 6. Types of guy wires, how to determine guy loads, and the selection of guy strand (TELEPHONY, Feb. 23, 1957).**

**Section 7. Selection and installation of anchors (TELEPHONY, Apr. 27, 1957).**

**Section 8. Selection and installation of anchors—continued (TELEPHONY, May 4, 1957).**

**Section 9. Installation of new cable facilities—lead and plastic (TELEPHONY, Sept. 14, 1957).**

**Section 10. Installation of new cable facilities—lead and plastic (TELEPHONY, Mar. 8, 1958).**

**Section 11. Methods used to fasten aerial cable to messenger strand (TELEPHONY, Aug. 9, 1958).**

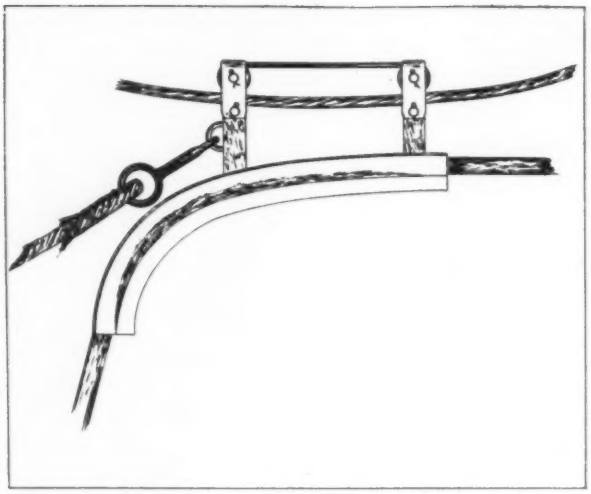

Fig. 1

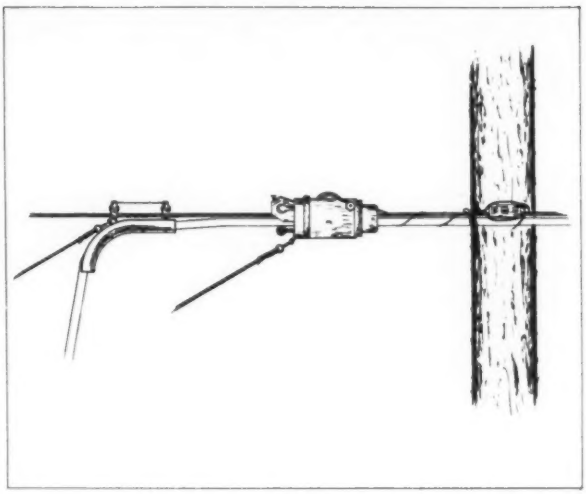

Fig. 2

placing shoe can be moved past the pole. This is a relatively simple operation. The lashing wire clamp is placed to anchor the lashed section. The cable placing shoe is moved over the three-bolt clamp at the pole to provide space to place the lashing machine in the new span. Next, the lashing wire is wrapped around the cable and strand and anchored with a lashing wire clamp and the operation is ready to proceed once again.

The best spinning job is achieved when the cable tension is held uniform throughout its length. A slight tension is placed on the cable as it unrolls from the reel. An additional tension is provided as the cable passes through the rounded cable placing shoe. This is the extent of the tension placed on a cable that is lashed as it is raised into position.

The truck or cable trailer, at times, may move away from the pole line to clear minor obstructions. In so doing, a greater amount of cable is suspended between the cable reel and the cable placing shoe. This changes the amount of tension on the cable as it is lashed.

The second method, in which the cable is raised into position and supported with temporary rings and then lashed, is preferred by many telephone companies. Although this method is a little slower than lashing the cable as it is raised, a more uniform tension can be maintained on all sections of the cable run.

An entire length or section of cable is raised and supported with temporary rings before the lashing operation is started. The easiest way of placing the cable in the temporary rings is to feed the cable through all the rings from the start of the run to the finish of the section or the length of cable. To prevent damage to the cable sheath, the temporary rings are equipped with rollers or broad rounded surfaces over which the sheath can be pulled without damage. A temporary cable ring equipped with a roller is illustrated in *Fig. 3*.

The temporary rings are attached to a one-quarter inch rope that is long enough to be fastened between the poles on each end of a span. The rings are spaced at intervals of 5 to 15 feet, depending on the size of cable being placed. A heavy cable would require spacing the rings at shorter intervals.

The cable is placed in the temporary rings and lashed in the following manner:

(1) A cable placing shoe is hooked over the strand and tied to the pole at the start of the run.

(2) A string of temporary rings are snapped in place over the strand. The pole-end of the rope to which the rings are attached is also tied to the pole. The other end of the rope is fastened

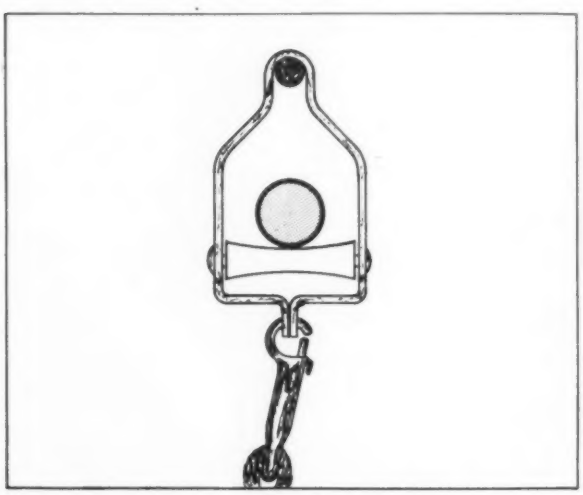

Fig. 3

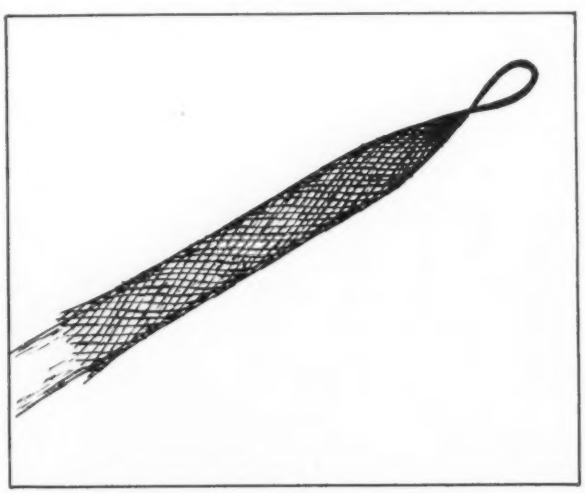

Fig. 4

to a cable placing ring guide roller that rides the strand.

(3) The reel of cable is placed in position a few feet behind the pole. A cable pulling grip is placed over the end of the cable, as illustrated in *Fig. 4*.

(4) The cable-end is raised, placed through the cable placing shoe; threaded through the string of temporary rings, and attached to the cable placing ring guide roller on the strand. The guide roller is attached to a truck or tractor with a tow line. The cable placing operation, as described above, is illustrated in *Fig. 5*.

(5) The cable is towed to the next pole. The temporary rings, being tied at intervals to the rope, space themselves along the span.

(6) At the next pole, the cable is unfastened from the guide roller and threaded through the next group of temporary rings.

(7) The temporary ring rope used in the first span is unfastened from the guide roller and tied to the pole. The guide roller is moved around the pole to the next span. The cable and free end of the second group of temporary rings are attached to the guide roller and the cable is again ready to be pulled to the next pole along the lead.

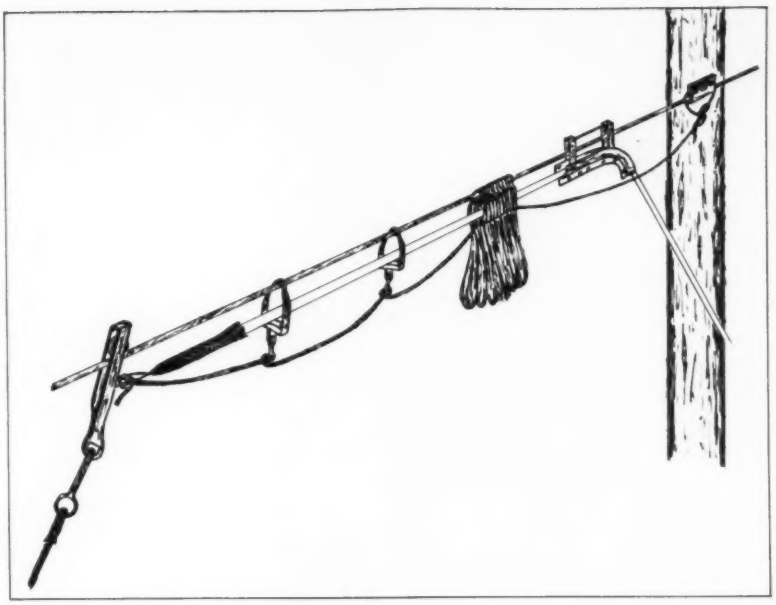

Fig. 5

The reel of cable or the cable required for the new section is placed in temporary rings before the spinning operation is started. The spinning operation is quite simple once the cable has been raised into position. The cable is suitably fastened at one end and placed under the desired tension. The cable spinner is placed in position on the strand and the rope to which the temporary rings are fastened is untied from the pole. As the cable spinner is towed across the span, the temporary rings are pushed ahead to the next pole. The rings are removed from the strand and the spinner is moved around the pole and placed in position to spin the next span.

After the cable spinning machine has completed the spinning operation, the lashing wire in each span must be securely terminated or dead-ended. The cable can be terminated easier when the lashing wire is dead-ended on either side of the pole. Also, by lashing each span individually, less damage will be likely if a lashing wire is cut or broken accidentally.

The dead-ending operation must be handled carefully to prevent slack running back into the machine spun sections of the span. The first step is to temporarily anchor the wire in place with lashing wire clamps. Next, a lashed cable support and a cable spacer are installed a short distance (on the order of 18 inches) from the pole. The lashed cable support generally is a flat zinc band about one-half inch wide with a simple fastening loop. The cable spacer separates the strand and cable to enable a few wraps of lashing wire to be placed around the strand.

The spinning wire usually is wrapped around the cable and strand to within 4 or 6 inches of the lashed cable support. Then the wire is wrapped around the strand to a point between the lashed cable support and the pole where it is anchored with a one-bolt clamp, as shown in *Fig. 6*. In some instances, the lashing wire is wrapped around the strand to the three-bolt clamp, passed around the three-bolt clamp to the opposite side where it is anchored with about five wraps around the strand.

The foregoing describes only one of several ways of terminating the lashing wire. There are numerous variations in exact procedures and in the type of lashed cable support and cable spacer used to terminate the lashing wire. The important objectives in terminating a spinning wire are as follows:

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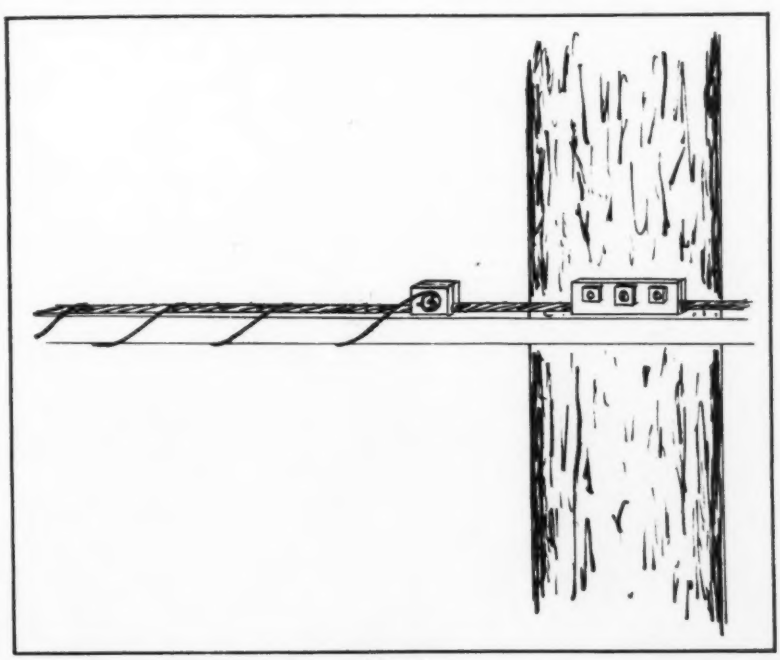


Fig. 6

# Mechanized Billing Saves Time and Clerical Costs

By MORRIS JONES*

**Discussing a typical telephone bill is author Morris Jones (left), office manager, and D. B. Corman, president of South Central Rural Telephone Cooperative Corp. Volume increases of more than 300 per cent prompted this team to completely mechanize their accounting and billing operations.**

SOUTH Central Rural Telephone Cooperative Corp., Inc. of Glasgow, Ky. is using a new and tremendously more efficient method these days to handle its billing operations.

Through the use of a Burroughs F 305 Sensimatic billing machine system, only a fraction of the time formerly used is now required to prepare all billing. Thanks to an improved "stub" plan, combined with the multiple operations of the Sensimatic, three girls now bill almost 5,000 subscribers in just three days.

That's right! Just three days. And that includes a monthly average of more than 10,000 toll tickets.

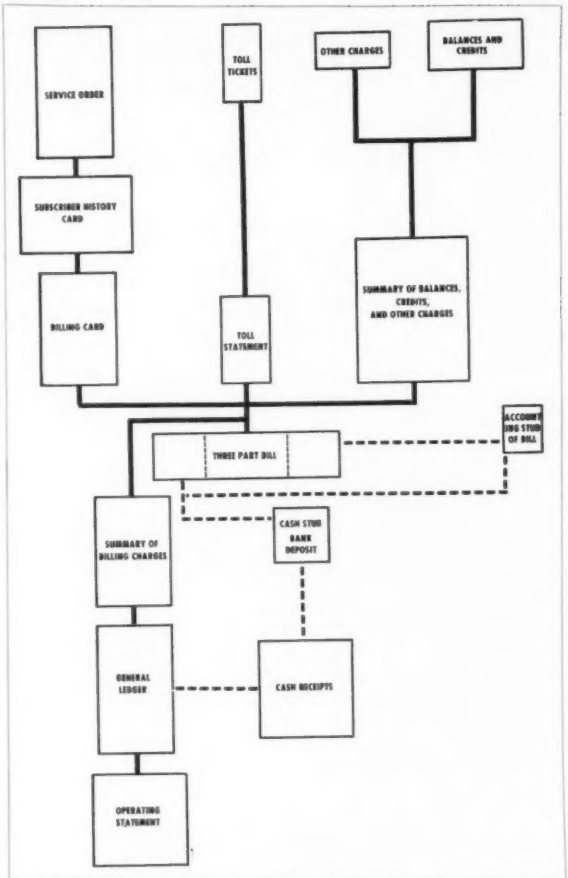
We have carefully developed this modern system, which easily, accurately, and rapidly handles all billing. And, we now know the exact status of every subscriber's account. Moreover, we have concrete automatic controls to assure that all figures are absolutely correct and in balance.

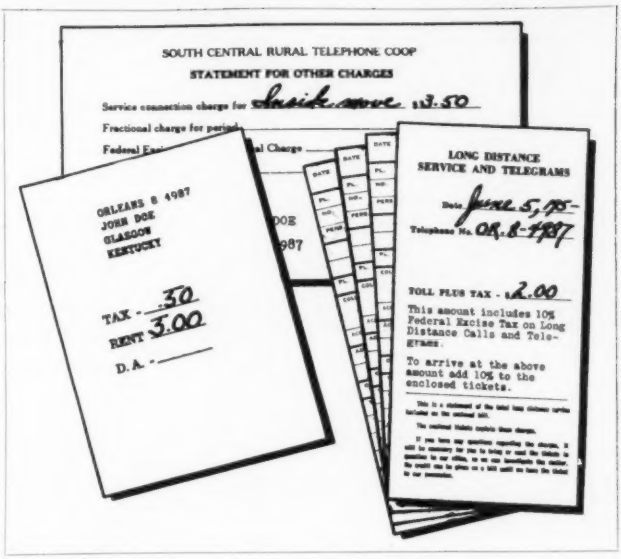
Presently, we have 12 exchanges with three more being developed. These should be completed in about another year and will increase our volume by roughly 2,000 subscribers. We now have 32 employes, nine of whom are office personnel. Of these, three handle all of the billing and related accounting procedures.

Eager acceptance of our services launched us into a program of rapid growth and expansion. Originally, we used a typewriter for toll billing. Unfortunately, this was mostly a handwritten, cumbersome, and time consuming procedure. When volume jumped to a record breaking 300 per cent in 1954, we realized that it was physically impossible for our staff to handle billing with our old methods and equipment. In fact, billing only 1,500 accounts under the old system was a tough job for three girls to accomplish in four days.

*Mr. Jones is Office Manager of South Central Telephone Cooperative Corp., Inc. of Glasgow, Ky.

**LEFT: Preparing the three-part bill and proof journal simultaneously is Sensimatic operator, Lucille Estes. Each bill amount is accumulated in the machine and a grand total of all subscribers' bills is automatically printed at the end of the run plus individual totals for each charge category. CENTER: After "rounds" of toll tickets are received they are sorted according to exchange and telephone number and then added on a Burroughs Duplex adding machine. Here, Frances Spillman lists telephone number and all applicable toll ticket amounts and computes a section of subscriber's bill as a by-product of listing. RIGHT: Emogene Settle, revenue accounting clerk, is shown validating the payment amount to the payment block on the accounting stub. Stubs are subsequently totalled and entered into General Ledger.**





SOUTH CENTRAL RURAL TELEPHONE COOP
STATEMENT FOR OTHER CHARGES
Service connection charge for basic move $3.50
Fractional charge for period
ORLEANS 8 4987
JOHN DOE
GLASGOW
KENTUCKY
TAX - .30
RENT 3.00
D.A. -
LONG DISTANCE SERVICE AND TELEGRAMS
Date June 5, 195-
Telephone No. OR. 8-4987
TOLL PLUS TAX - $2.00
This amount includes 10% Federal Excise Tax on Long Distance Calls and Telegrams.
To arrive at the above amount add 10% to the enclosed tickets.

**LEFT: From service order to operating statements, billing work at South Central follows a specific and thoroughly simplified flow with firm, stable controls. ABOVE: Duplicate ledger card (left) provides standard monthly rental information for billing procedure. Toll tickets (right) and Statement for other charges (top) are additional charges used in billing operation.**

In a nutshell, it was a question of hiring several more office clerks or switching to modern machine methods.

After careful study and investigation, we installed the Burroughs F 305 Sensimatic telephone billing machine. This 11-total, automatic machine is especially designed to handle and simplify the complex problems of rural telephone billing. With this machine and our new stub plan, the bill is prepared in three sections simultaneously. These three sections are the subscriber's bill, cashier's copy, and accounting copy. Each amount is printed directly on the bill, and the machine accumulates the total automatically.

A grand total of all subscribers' bills is also automatically accumulated in the Sensimatic. In proving the bills, these accumulated totals must equal the sum of the control totals of rental, toll charges, tax, arrears, balances, and miscellaneous charges.

We also receive a simultaneously prepared proof journal containing an itemized, and detailed record of all billing. Included on this journal are totals for each charge category.

In addition, we installed a Duplex split keyboard adding machine to summarize toll tickets and establish control figures. To round out our modern procedures, we purchased a microfilming unit to prepare images of toll tickets for permanent records. Microfilming has also eliminated filing and related storage problems.

In the actual billing operation, all billing is accomplished by one machine

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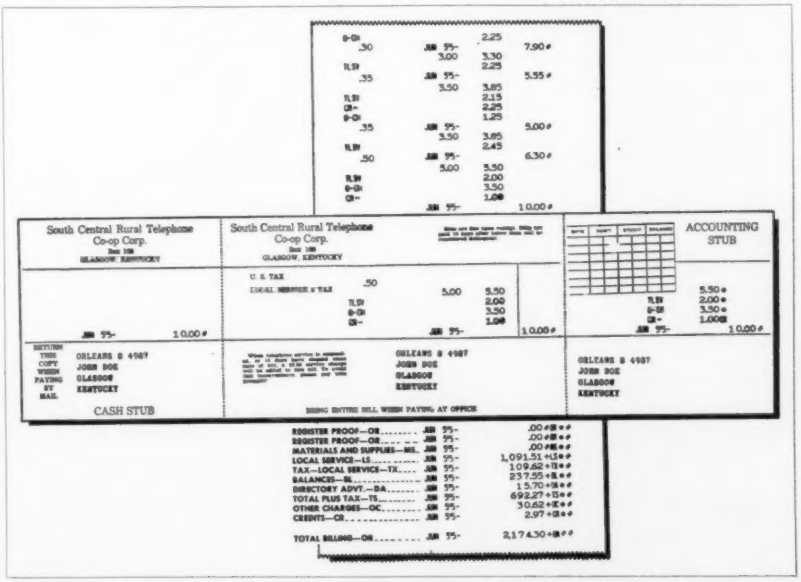


**Three-part bill and proof journal are prepared simultaneously in one operation. Each charge is entered once in Sensimatic which automatically computes and prints amount. Totals for each charge category are also provided automatically with code symbol for each category.**

# THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

TELEPHONE "time" service is an important function of the telephone industry these days. Nearly every home has one or more electric clocks. Even a momentary power failure may cause thousands of people to dial "time" to make certain that these clocks are reset correctly. It is stated that the daily peak for time service is between 7 and 8 a.m. This is the time that house wives are struggling to get the children off to school on time and the man, who brings home the bacon, to work.

We recently heard of a new use for telephone time up in Oregon. A bride had the perplexing household problem of cooking a two-minute egg for a husband with a fussy appetite. They did not have a timepiece with a sweep second hand, so she solved her problem by simply dialing the time, dropping the eggs in the water, and waiting for the mechanical voice to toll off two minutes.

•

The writer recently was privileged to hear a speech delivered by His Imperial Majesty, the Shah of Iran, at the National Press Club in Washington, D. C.

From his report, his country is making wonderful progress in raising the living standards of the masses. They even have an irrigation and flood control project patterned after our own TVA. Furthermore, 2,400 students from Iran are presently attending colleges in this country.

•

Frequently, we have noticed several public coin-type telephones installed about 2 feet from each other along a shelf. Usually these are installed in a drug store in a cluttered space. There is no partition of any kind between the telephones, and the users have practically no privacy. Certainly such an arrangement will not contribute to the good public relations of any operating company.

Practical telephone booths are now available at a reasonable cost; and sizes and shapes can be provided to meet almost any requirement. In view of the revenue derived from the average public telephone, it would appear that suitable booth facilities would prove a good investment for any operating company.

•

In the borough of Manhattan there is a campaign under way to make New York City quieter. They are attempting to end the noise caused by automobiles and trucks passing over manhole covers in the streets. They have recently started a year's experiment with a square manhole cover that supposedly is not affected by traffic passing over it and, therefore, is noiseless.

•

Leisure is defined as the finished product of efficiency.

•

An English friend argues that his country's method of answering the telephone is much superior to saying "hello" as we do. He explains that, in England, they say, "Are you there?". Then, of course, if you are not there, there is no need for going on with the conversation.

•

It is a healthy symptom for a man to be dissatisfied without being discouraged.

•

Recently, we tested a new type of hammer that appears to have numerous advantages when drilling masonry using hand type drills.

This double-faced hammer has a hollow center that is partially filled with shot. When a blow is struck the shot travels from one face to the other, and causes a harder blow to be struck. Furthermore, this new hammer appears to be less tiring to the user than the conventional variety.

•

The writer recently enjoyed a most pleasant evening in the company of Col. Juan E. Arroyo, chief signal officer of the Philippine Army, who recently completed the course at the Command and General Staff College at Fort Leavenworth, Kan. It was surprising how many communicators we have as mutual friends. This, despite the fact that the Colonel was an infant when the writer last visited the Philippines.

•

Our observation indicates that the loudspeaking telephone is not being accepted by the public as was predicted. Certainly there are many locations where this type of instrument could be used to advantage.

We should be pleased to receive comments from our readers as to their experiences with this type of instrument.

•

In the interest of safety, we are advised that passing on curves is best left to judges of beauty contests.

•

Out in Cleveland, two retired top executives are sharing a downtown office with no telephone and just enough space for both to squeeze in. They justify it as a place for them to get out of their wives' hair.

They have cards printed describing them as "Retired non-consultants with no work, no worries, no ulcers, no telephone, no prospects, no nothing."

•

Sometime ago on this page, we speculated as to why someone did not invent and manufacture a combination ashtray-lighter so that smokers in con-

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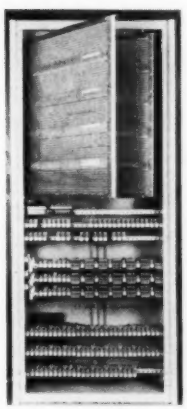

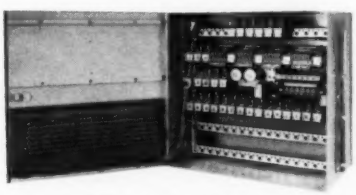

Cabinet 19" x 17" x 8" for rack or wall mounting, 60 lines TPL illustrated.

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ference rooms would not be required to deposit cigarette ashes in their pant's cuffs.

Now, our long-time friend, W. C. Dillon, from out California way, sends us a lighter that incorporates this idea. This lighter, made in Japan, has a small drawer that pulls out at the bottom. A cigarette holder flops out automatically at one side as an added feature.

We must now admit that, with the help of Bill Dillon, we are certain that "there *is* something new under the sun."

•

The first submarine cable to actually carry messages across the Atlantic between the new world and Europe was placed in service 100 years ago. Unfortunately, however, this cable only remained in service from Aug 5 to Oct. 20, 1858.

The first successful trans-atlantic submarine cable was completed on Sept. 18, 1866. The signalling speed at first was only eight words per minute but was later increased to 15 and 17.

•

It is claimed that most of us know how to say nothing—few of us know when.

•

The Business and Defense Services Administration of the U. S. Department of Commerce reports that 4.7 million lines of automatic central office equipment and 538,000 lines of automatic PBX equipment were produced in 1957. A total of 7,958,922 telephone sets were produced in the same period which represents a decline from the 8,018,658 manufactured in 1956. A total of 29,302 metal telephone booths were also produced in 1957.

There are men in this telephone business of ours who actually get paid for watching television programs. These are transmission men who work in the test rooms to make certain that network programs reach their destinations without a hitch.

Recently, when visiting a test center in New York City, we observed a chap monitoring three television screens. Not being much of a TV fan ourself, we inquired of him how long a man had to work at that job before he went crazy. He replied, "Not very long, except during the baseball season."

•

We are told that regret is to human beings what mud is to hogs—it's good only for wallowing in.

# Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

**Q. In the planning of an underground cable distribution system, how can we determine the number of ducts required?**

A. It is always well to provide one spare duct for maintenance purposes in addition to the ultimate number of ducts required in any area. If one additional duct creates a nonstandard conduit structure, then it is generally a better plan to provide two spare ducts. It is usually not considered necessary to provide spare ducts in lateral runs to terminals. Failures in feeder cables are usually complete and the spare duct would only reduce the time required for repairs as that which is necessary to pull out the old cable. At least one spare duct should always be provided between all manholes. It is a good plan to play safe in all cases and provide an ample number of ducts. Reinforcing a conduit run is always an expensive and difficult undertaking.

•

**Q. Can you explain what counter EMF cells are and how they are used in the telephone exchange?**

A. If the central office storage battery is permitted to discharge for a long period of time, a special charge will be necessary to restore it to a charged condition. To prove sufficient charging current in such a case, the output voltage of the charger must be increased.

Since the charger is connected directly across the central office load, an increase in its output will increase the central office load voltage. To adequately maintain the limits of voltage required for the central office, some power plants have provisions for switching a number of counter electromotive-force cells in series with the main battery while charging.

This action offsets the rise in the output voltage of the charging equipment due to the fact that counter emf cells have the property of setting up a voltage opposing the voltage which is driving current through the cells. The introduction of counter emf cells in the circuit has the same effect as introducing equivalent resistances, except that the cells accomplish their purpose without much power consumption and the voltage drop across the cells does not vary greatly with the current.

Counter emf cells are used also to reduce the main battery voltages which may be too high for other special purposes. For example, a large telephone exchange will usually have a 48-volt battery and serve several PBX systems, each of which require 24 volts. A number of counter emf cells are inserted in series with the switchboard battery feeders to adequately reduce the voltage.

•

**Q. We understand that it is possible to blast poles into the ground. Can you explain to us just how this is accomplished?**

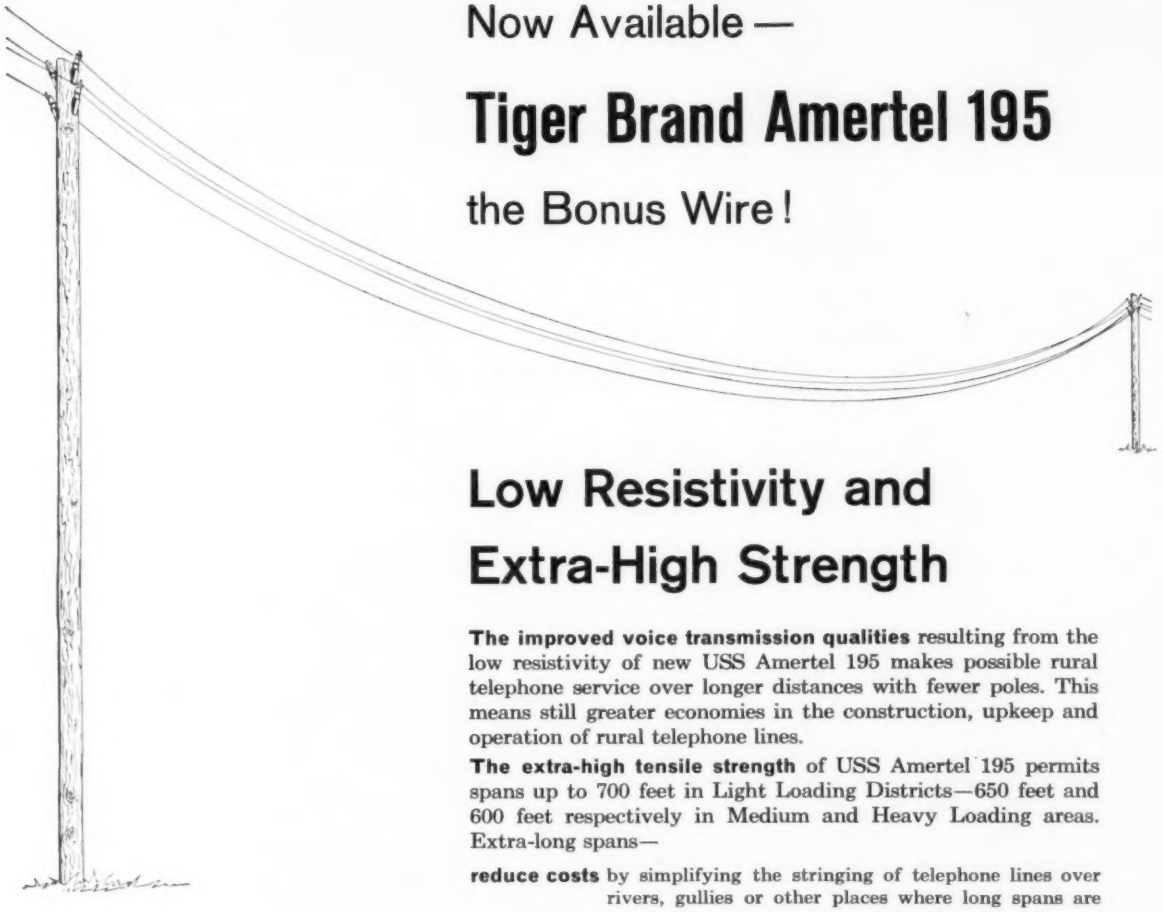
A. Pole setting by blasting is sometimes used in marshy ground, muck, quicksand or other types of loose soil where a pole hole cannot be dug. To make use of this method, the pole is first raised and guyed to hold it in the proper position with the butt resting on top of the ground. A hole should be drilled from the ground level at an angle so that the charge can be placed directly under the center of the pole.

In certain types of soil, it may prove desirable to use two pieces of pipe, one fitted inside the other, to drill the bore hole. If the pole is extra large, it may prove desirable to drill two holes, one only half as deep as the other. The deeper hole should be the depth to which the pole is to be set.

A primer with one stick of dynamite and an electric blasting cap should be placed in each bore hole. When two or more holes are used, the blasting caps are wired in series. The bore holes should be well tamped after the charge is placed.

When the charge is detonated, the pole will drop into the hole blown open by the explosion. The pole should then be aligned with the guys and tamped into place.

Only qualified men should be permitted to load and fire the explosive.



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**The extra-high tensile strength** of USS Amertel 195 permits spans up to 700 feet in Light Loading Districts—650 feet and 600 feet respectively in Medium and Heavy Loading areas. Extra-long spans—

**reduce costs** by simplifying the stringing of telephone lines over rivers, gullies or other places where long spans are necessary.

**reduce costs** by making it possible to string telephone lines on rural power lines without the use of intermediate supporting poles.

**reduce costs** by cutting down on the number of poles required, with subsequent savings in man-hours, hauling, hole digging and installation.

Because of the extra-high strength of USS Amertel 195, it performs well under heavy ice loads, keeping service interruptions to a minimum. Often ice-coated Amertel 195 will touch the ground in mid-span. While the wire is resting on the ground, the ice sheath serves as an insulator . . . service continues, uninterrupted. After the ice load is removed through melting, the wire will return to its position in the air.

**New folder tells the full story on USS Amertel 195.** Just off the press, this new folder gives full information on this outstanding new telephone wire. For a free copy, send your request to American Steel & Wire, Room 842, Rockefeller Building, Cleveland 13, Ohio.

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**USS Amertel 195 Specifications**

| | |
|---|---|
| Size B.W.G. | No. 12 |
| Nominal Diameter in Inches | 0.109 |
| Minimum Breaking Strength (Pounds) | 1800 |
| Resistance per Mile (Ohms) Maximum | 38.8 |
| Approximate Weight per Mile (Pounds) | 170 |
| Approximate Weight per Coil (Pounds) | 160 |
| Minimum Weight per Coil (Pounds) | 144 |
| Maximum Weight per Coil (Pounds) | 176 |
| Approximate Length per Coil (Feet) | 4970 |
| Minimum Length per Coil (Feet) Approximate | 4470 |
| Maximum Length per Coil (Feet) Approximate | 5470 |

**American Steel & Wire Division of USS United States Steel**

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United States Steel Export Company, Distributors Abroad

# THE Operator's Corner

By MAYME WORKMAN — TRAFFIC EDITOR

HAVE you ever taken a "busman's holiday?" It's really fun. One Saturday morning recently, Clara Loesche, former chief operator for the Harrisonville Telephone Co., at Red Bud, Ill., and the writer, drove to the company's headquarters at Waterloo, Ill., and called at the telephone exchange. After spending a few minutes in the commercial office, we went to the operating room and found three operators hard at work at their common battery switchboard. They greeted us with smiles and a friendly nod, and kept right on working, as they should, of course. We didn't tarry very long but it was good to get the central office atmosphere even if only for a short time.

We then went next door to the bakery, operated by Mr. Schulmeister, who is also president of the telephone company. Going through the bakery to the living quarters or office of Mr. Schulmeister was a delightful experience, as we inhaled the fragrant aroma of the tasty bakery products. Having had breakfast at a very early hour, I was reminded that lunch time was going to be a pleasant occasion. W. C. Heyl, manager of the Harrisonville Telephone Co., was in Mr. Schulmeister's office, so we had a good talk-fest and, as telephone folks do when they get together, we did a lot of reminiscing.

We also had the pleasure of visiting with Mr. Schulmeister's family. I recalled the time when I was doing some supervisory work in Waterloo during the Halloween season and the girls had asked me to bring some old clothes along as they were planning a Halloween party. During the course of the evening, when we were all dressed up, I went into the bakery and asked for a loaf of bread.

Mrs. Schulmeister said to one of the clerks, in German, "I wonder if she has the money to pay for it," not knowing she was speaking to someone who had understood her comment. I don't blame her for being dubious, having taken a look at myself in the mirror before making the call. It was a great evening and I still have the picture taken on this occasion.

Our next stop was at the home of Frieda Fischer, chief operator at Waterloo. Knowing that we were coming, Frieda had invited us to eat lunch with her. After chatting for awhile, Frieda said, "Shall we eat?" This was music to my ears as I had been hungry ever since we stopped at the bakery.

"Lunch" turned out to be "dinner with all the trimmings." I don't know when food has tasted so good. We talked of the past, the present, and the future and the time passed all too quickly. After taking a ride around Waterloo, we dropped Frieda at the central office and headed for Red Bud, where we were the guests of Clara's sister. It was good to get to her home and relax before dinner.

I took a nap while Clara visited with her sister. The evening was to be devoted to a card game, Clara's sister having invited a friend in to make a foursome. After a tasty meal, we started chatting and, at 10:30 p.m., we were still at it. We decided it was too late to start a card game so off to bed we went.

Sunday morning, Clara and I went to our respective church services and then headed for the country to have dinner with Clara's Aunt Lydia and her family. What a delightful experience that was! It had been years since I had the pleasure of spending some time in the country and sitting down to a real, old fashioned country dinner. The table groaned with good food, including homemade bread.

After the dishes were washed and we had visited for a little while, Clara, her sister Agnes, and I were on our way to call on the girls' brother and his family in his lovely home. We had some refreshments and then called on a mutual friend of ours. We picked up our bags and headed for Springfield tired, but happy, after a delightful week end.

It is too bad time does not permit us to have more "busman's holidays." It had been more than 10 years since I had visited my good friends in Waterloo.

Going through Collinsville, I thought of my friend and former co-worker, Julia Waters, during the days when we both worked in the Bell exchange in Springfield. Julia finished her telephone career in Collinsville and is making her home there since her retirement.

As we passed through Belleville, I thought of Mrs. O. L. Beck who was chief operator in the exchange there when I traveled in that territory. I don't know if she is still working but I always receive a card from her at Christmas. As we passed the Belleville Hotel, I recalled the day of its opening when I enjoyed dinner there with my late husband and a friend from New Athens.

It is wonderful to make new friends as we go through life but even more wonderful to retain the friendship of the telephone folk we have worked with through the years.

## Traffic Questions

(1) If a line has been temporarily disconnected at the customer's request, how should this information be given to the calling party?

(2) If an operator receives an Aircraft Flash call from a telephone other than locally designated to originate such calls, what should the operator say?

(3) On an Aircraft Flash call from a coin telephone, how should the operator proceed?

(4) What precedence does an Aircraft Flash call take?

(5) How should the operator proceed if the called telephone is slow in answering on an Aircraft Flash call?

*Answers are presented on page 56.*

**For telephone line wire**
*. . . bare or insulated*

**For rural distribution wire**
*. . . guy strand or messenger*

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## COMMUNICATIONS WIRE

Copperply wire introduces a unique combination of advantages and economies. For example: better balancing of circuits, suitability for future carrier circuits without additional line work, extended service life, improved long span installation, and sizeable economies both in insulating the wire and in line construction.

These gains stem largely from precise concentricity, linear uniformity, and a non-porous rust proof copper coating permanently united with a high tensile, precision-drawn steel core, as well as availability in continuous *non-welded* lengths up to 1,000 pounds.

Copperply is now available in High Strength and Extra High Strength grades, with either 30% or 40% conductivity, and in all standard sizes from No. 3 to No. 14 AWG.

Bulletin 202 gives additional data. Write National-Standard, Niles, Michigan.

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DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *tire wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *music spring, stainless and plated wires, high and low carbon specialties* • WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • ATHENIA STEEL, Clifton, N. J.; *flat, high carbon spring steels* • REYNOLDS WIRE, Dixon, Ill.; *industrial wire cloth*

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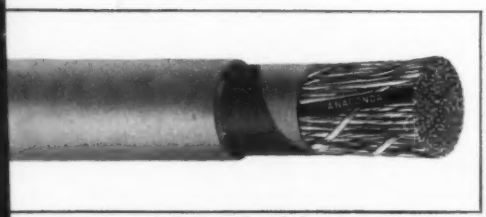
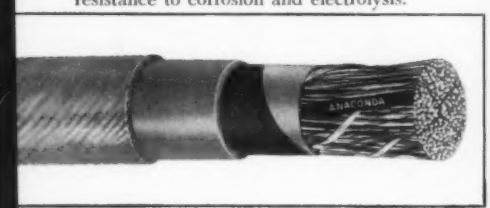
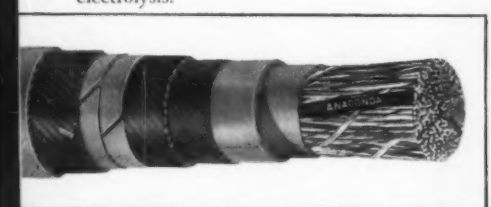


**PAPER-LEAD** for aerial and duct use.

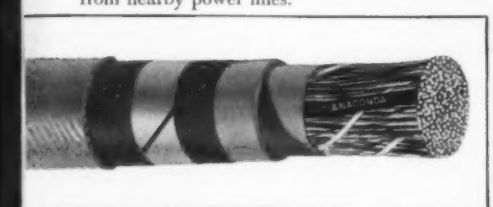
**POLYETHYLENE PROTECTED LEAD CABLE** offers high resistance to corrosion and electrolysis.



**JUTE PROTECTED LEAD CABLE** resists corrosion and electrolysis.



**BURIED TAPE ARMORED LEAD CABLE** (2 layer steel) for areas subjected to low-frequency induction from nearby power lines.



**GOPHER PROTECTED LEAD CABLE** (1 layer steel) direct burial cable where mechanical protection is needed.

**ANACONDA PAPER-LEAD TELEPHONE CABLE** being installed near Harold, Kentucky.

# Cable from 6 to 2121 pairs—

## . . . when and where you need it!

Anaconda offers you everything you need in paper-lead telephone cable—produced in a new, modern plant devoted exclusively to telephone cable products. Telephone experienced personnel who understand your problems utilize the latest, most exacting quality control standards—to produce quality telephone cable. And order service is prompt and efficient wherever you are because of a national network of distributors, Anaconda sales offices, and mills.

Call your Anaconda distributor or the Man from Anaconda for your paper-lead telephone cable needs. Also—write for new Catalog DM-5771. Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

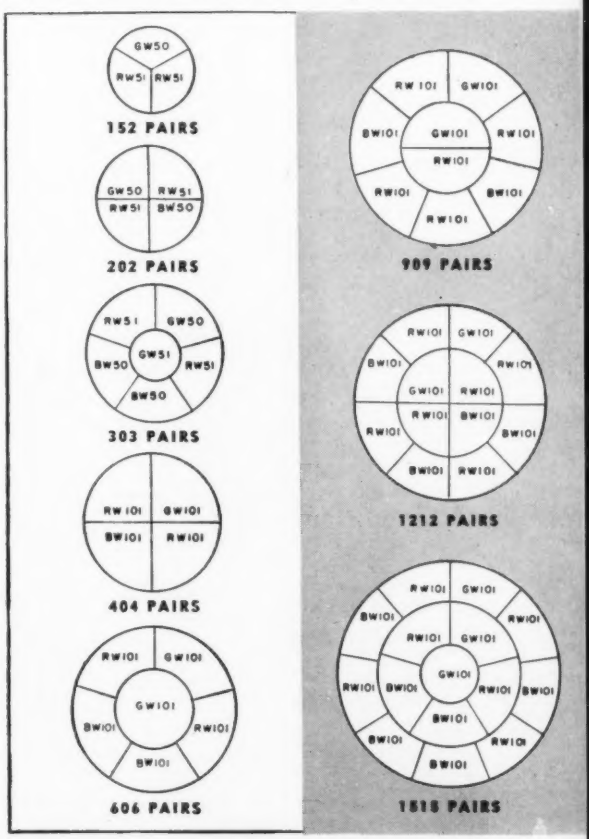
58324

Shown here is a typical unit construction for 152 pairs through 1515 pairs, No. 24 Awg. Following constructions also available:

| | | | | |
|---|---|---|---|---|
| No. 19 Awg | 6 | through | 455 | pairs |
| No. 22 Awg | 11 | " | 909 | " |
| No. 24 Awg | 11 | " | 1515 | " |
| No. 26 Awg | 11 | " | 2121 | " |

The number in the assemblies denotes the number of pairs in the unit. The letters refer to the color of the outside pairs of the unit. GW, green-white; RW, red-white; BW, blue-white. The units are further distinguished by a color-coded binder string.

### Choose Anaconda Paper-lead Telephone Cable in the size you need.

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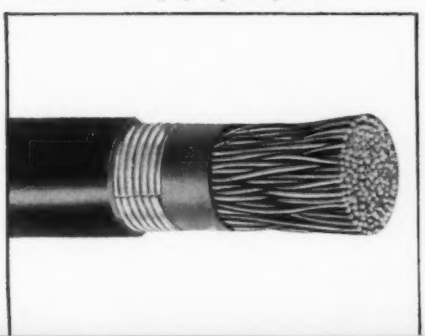
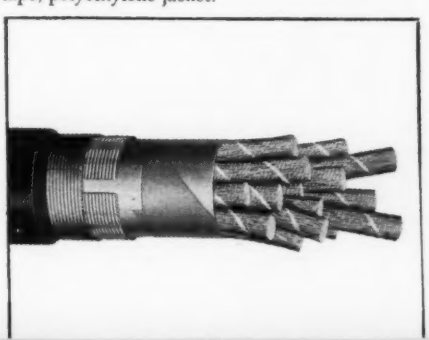
**FOR TELEPHONE CABLE**

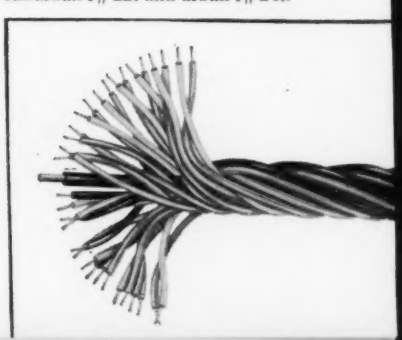
**ALPETH**—Polyethylene-insulated, low-resistance aluminum shield, polyethylene jacket.



**STALPETH**—Paper-insulated, aluminum shield, steel tape, polyethylene jacket.



**DISTRIBUTION WIRE**—rural [#19], suburban [#22] and urban [#24].



# TELEPHONY'S Traffic Engineering Handbook

By Gilbert R. Brackett

August 16, 1958

## Section 22 (Continued)
## Numbering Arrangements

On the other hand, there are situations where equipment limitations, etc., in which the use is made of a directing code, or codes, appears to be the only answer for the customer to dial certain other telephones he may wish to reach. In fact, in some cases, the use of a directing code, or codes, may be a service improvement by operator elimination, since the speed of the call will be considerably greater when the customer dials his call directly.

### Selecting Central Office Names

Office names which are difficult to pronounce and hard to understand over a telephone, or have intricate spelling, lead to customer confusion and dialing errors.

An office name must first meet the numerical code requirements, since no two offices in the same area may have the same code.

Before operator toll dialing became quite general, office names were selected on the basis of local area considerations with no weight given to the effect of the choice of names on handling toll calls. But with operator toll dialing, the entire United States and Canada becomes, in effect, one huge multi-office city. An outward operator may be called upon to dial the first two or three letters of any office name in any city in the two countries, and this means that her speed and accuracy will depend greatly upon her being able to pronounce, understand and spell these names accurately.

Some of the considerations which must be taken into account when preparing a list of preferred office names are:

(1) Names should be simple, in common every-day use and without sectional variations in pronunciation or spelling.

(2) Names should be phonetically desirable and, as far as possible, easy to spell.

(3) Preference should be given suitable names now frequently used in various cities over equally good names seldom used.

(4) Names should be used which differ in pronunciation, as much as possible, from all other names on the list.

We can sum up the numbering arrangement question in a very few words.

Numbering plans increase in importance as dial service becomes more and more universal, and as the extension of the customer dialing radius expands with the expansion of local service areas, and the use of facilities for timing and charging of toll calls.

The main problem is one of providing numbering plans which the subscriber can use with the ultimate degree of convenience and accuracy. The quality of the service which the dial system projects will depend upon how successfully the traffic engineering group is meeting this objective.

## Section 23
## Influence of Exchange Rate Structure on Facilities

The Rate structure, as we speak of it, is the basis of charging for telephone services. It takes into account the costs of giving service to the various classes of telephone stations in the exchange, such as—message, coin, party, etc.

The rate structure will vitally affect the design of a central office—facilities for party-line ringing, for charging on message rate lines and for coin handling on pay-stations must be engineered into the equipment when these services are a part of the exchange demands. Manual offices suffer less from class of service variations than does an automatic office. In automatic offices, in addition to the need for providing the appropriate equipment for these special classes of service, the lines must ordinarily be segregated by classes of service in the switching equipment.

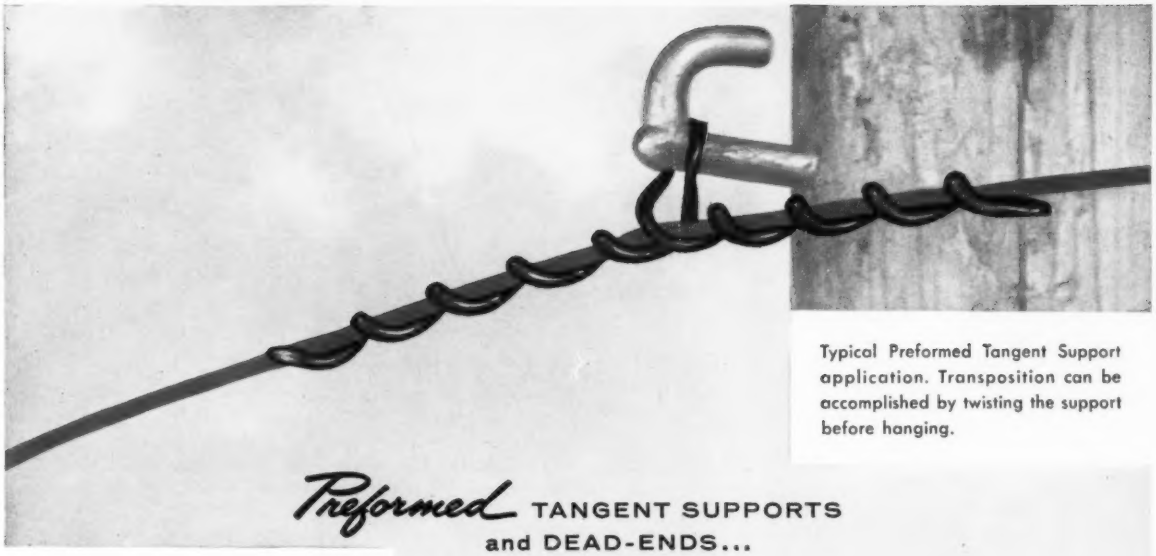
It usually is an expensive procedure to arrange for changes of service classes in an established automatic office, especially if such rearrangements are from a simple to a more complex service class; i.e., from flat rate to message, or from message individual to message party. It is important to anticipate any rate structure changes prior to the time they become effective. When this is done, such alterations or rearrangements can be accomplished without causing service lapsing or excessive costs.

### Automatic Central Offices

Of course, the most easily understood automatic switching equipment is that which serves flat rate individual lines which do not require timing or charging features.

In terminal-per-station (TPS) exchanges, a number is assigned to each main station or telephone. The number of party lines in such an office affects the ratio of lines to main stations or subscriber numbers. For example, in an office having 10,000 numbers, should one-half of the lines be two or four-party with an average of two stations per line, only 6,500 or 7,000 can be cut into service instead of over 9,000.

For flat rate stations on party lines, ringing equipment must be provided which can choose calls to either

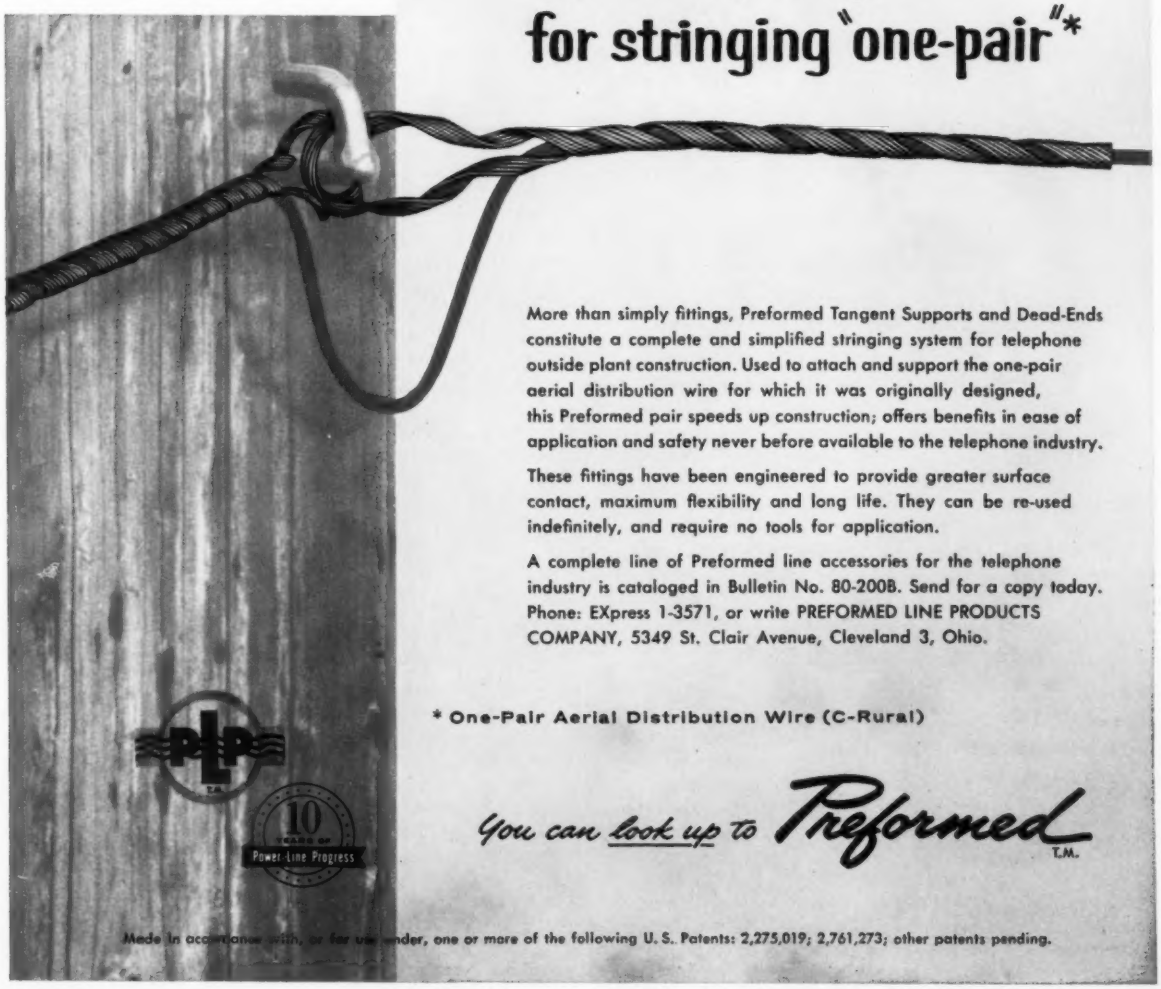


Typical Preformed Tangent Support application. Transposition can be accomplished by twisting the support before hanging.

*Preformed* TANGENT SUPPORTS
and DEAD-ENDS...

# the accepted pair for stringing "one-pair"*

Typical corner installation with two Preformed Dead-Ends permitting application without cutting the wire.



More than simply fittings, Preformed Tangent Supports and Dead-Ends constitute a complete and simplified stringing system for telephone outside plant construction. Used to attach and support the one-pair aerial distribution wire for which it was originally designed, this Preformed pair speeds up construction; offers benefits in ease of application and safety never before available to the telephone industry.

These fittings have been engineered to provide greater surface contact, maximum flexibility and long life. They can be re-used indefinitely, and require no tools for application.

A complete line of Preformed line accessories for the telephone industry is cataloged in Bulletin No. 80-200B. Send for a copy today. Phone: EXpress 1-3571, or write PREFORMED LINE PRODUCTS COMPANY, 5349 St. Clair Avenue, Cleveland 3, Ohio.

* One-Pair Aerial Distribution Wire (C-Rural)

*You can look up to* Preformed T.M.

Made in accordance with, or for use under, one or more of the following U. S. Patents: 2,275,019; 2,761,273; other patents pending.

# TELEPHONY'S Traffic Engineering Handbook

**(Continued)**

**By Gilbert R. Brackett** **August 16, 1958**

station on the same line, all of which adds to the intricacy of the equipment.

Facilities for message rate lines calls for added features in order to operate the message register related to each main station. Should the office have two-party message rate lines, additional equipment will be called for to insure charging the proper party.

Prepayment coin lines must be arranged to collect the coin should the local call be completed, or to return the coin on "don't answer" or "busy" calls. In addition, operators must be provided with the capabilities for collecting or returning the coin as occasion demands.

It is generally more economical to provide separate groups of originating equipment when such facilities are required to care for message rate and coin lines, as these equipments are more elaborate and costly than those used for flat rate lines.

While facilities for charging and timing short-haul toll calls add to the complexity of the automatic equipment, they usually are provided only where the total results will bring about a saving in operator labor great enough to make them attractive. Such facilities may include such service as zone registration wherein the charges, complete with overtime, are recorded on a message register; automatic ticketing in which a ticket showing the details of the calls is printed.

The rate structure is generally set up to allow subscribers having certain extended services, to dial over a wide geographical range without being charged for toll, while other subscribers are confined to a restricted area. Where dial service is involved, facilities must be so arranged as to permit extended customers to dial to all points in their "no charge" service area. This will require that numbering arrangements be worked out which customers can use conveniently and accurately when dialing more distant points. In order to make the distinction between the local calling areas of restricted and extended area service lines, the two classes of lines are confined on the originating equipment, either into different line groups or within the same line groups, the method of segregation depending upon the type of equipment used.

Therefore, to sum up the effects of the rate structure on facilities, it is readily evident that the automatic office must be engineered to furnish the classes of service itemized in the rate structure. Party lines should be given the necessary type of ringing equipment. Message and coin lines must be provided with such facilities as will permit register operation and will provide coin collection or return. In offices where customer dialing of zone or toll calls is involved, the necessary equipment for charging and timing on such calls must be provided. Numbering arrangements should be established which customers can use easily and conveniently to reach all points within their dialing area. Any change in rates which affects volumes and direction of flow of traffic, such as the substitution of an extended service rate for a toll charge with resulting increase in traffic, must be considered if service level is to be maintained.

Changes in the rate structure often necessitate alterations in the type of equipment in the grouping of lines and in the trunking arrangements.

When all these rate structure details are taken into account, one can understand the amount of preliminary planning, detailed engineering and the installation and rearrangement work that is involved in a rate structure change.

Many alternate arrangements must be studied minutely and thoughtfully considered, and their cost weighed against service advantages and customer appreciation. Office names must be carefully selected with two thoughts in mind—code and community requirements. Almost any rate change will stimulate traffic one way or another and these preference indications must be cared for in the provision of trunks if a service drop is to be avoided. Directory arrangements must be suitable in every way possible and the change must be accompanied by careful publicity.

*(The End)*

## Israel Plans to Add 50 New Exchanges, New Lines

Israel plans to expand the country's telephone network by 33,000 lines and to set up 50 additional telephone exchanges for a total of 70, within the next 3 years, it was reported on Aug. 4.

About 50,000 new telephone instruments and other equipment to be manufactured by a telephone equipment plant (Telrad) at Lydda, will be required for service on the 33,000 lines. Telrad previously has produced 55,000 telephones and 550 small telephone exchanges.

Expansion plans also call for an underground telephone network for Eilat to accommodate 200 subscribers.

As part of this project, the Government has opened a VHF teleprinter service between Eilat and Tel Aviv which is transmitted by relay masts to Rosh Cufrit and Mitzpeh Ramon.

On completion of the relay stations four additional radiotelephone lines will be added to the two already serving Eilat.

## Spoils of Accomplishment

He who does something at the head of one regiment will eclipse him who does nothing at the head of a hundred.

—ABRAHAM LINCOLN.

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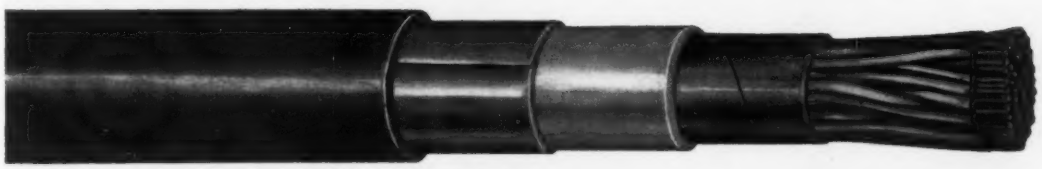

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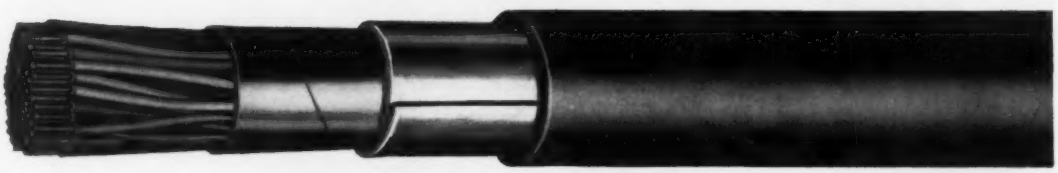

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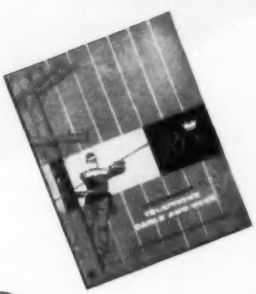

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**THE REX CORPORATION**

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# Nearby Kellogg Supplies help restore service after devastating Iowa tornadoes

Thanks to close-at-hand supplies from Kellogg, La Porte, Iowa's telephone service was rapidly restored after heavy tornado damage in late spring. Close co-operation between M. W. Wagner, manager of La Porte's telephone company and the Kellogg regional warehouse in Kansas City, Kansas put 750 telephones back in service within ten days although miles of line were down throughout the area. True to the traditions of the telephone industry, more fortunate neighboring companies sent emergency service personnel into La Porte to help with restoration.

La Porte's disaster is typical of that faced each year by hundreds of independent companies throughout the country. In all cases, and at all times, the regional Kellogg warehouse stands ready to be of service, as with La Porte.

Completely stocked and equipped, you'll find your Kellogg warehouse the ideal place to fill your supply needs, regardless of how large or small your requirements may be.

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Ill. Communications Division of International Telephone and Telegraph Corporation.

KELLOGG
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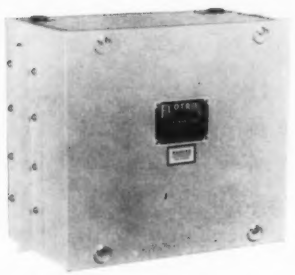
Communications Division of
IT&T



**FLOTROL CS Units** (Carrier Supply) will furnish uninterrupted power for all carrier or repeater operations. Normally operate from 60-cycle line but transfer to exchange battery in case of power failure. Models available with and without signal lamps and alarm features. Regular unit provides 0.5 ampere at 130 volts. Heavy-duty unit rated 1.5 amperes, 120 or 130 volts. LORAIN PRODUCTS CORPORATION.

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with paper-insulated conductors

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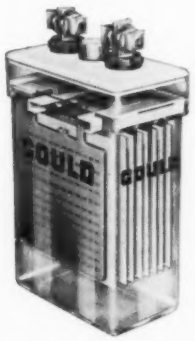
**Simple, Quick, and Sure!**—For splicing two wires of different sizes, there's nothing simpler than using Nicopress reducing sleeves and the Nicopress 31-DC tool. Splices are always tight and strong. Made by the NATIONAL TELEPHONE SUPPLY COMPANY.




**Outstanding Battery Performance** is yours when you choose Gould Planté Batteries. Thick, grooved, pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC., the finest money can buy.

**Reliable Stainless Steel and Aluminum Drop Wire Clamps** are available with or without floating shims. Types include all-stainless steel (for coastal areas) to more economical units with aluminum shells and shims. RELIABLE ELECTRIC COMPANY.

**The Time-Tested Steel Strand.** A ductile, adherent zinc coating, applied by the famous Crapo Galvanizing Process, provides lasting protection against corrosion in INDIANA STEEL & WIRE COMPANY'S Crapo Steel Strand. Minimum maintenance expense.

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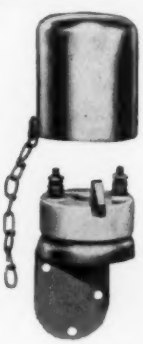
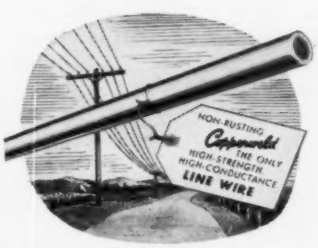


**Developed for Better Insulation,** the Cook Testerm Drop Wire Connector improves connecting and testing methods, occupies less space and provides terminating facilities for drop wire. Made by COOK ELECTRIC COMPANY.




**COPPERWELD LINE WIRE** put up today will always be up-to-date because it's the best engineered conductor for voice and carrier circuits. It's strong, non-rusting, easy to string. Use .080"-30 for short subscriber loops and secondary toll lines and .104"-40 for toll lines and long subscriber loops. COPPERWELD STEEL COMPANY.

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## Telephone

**ONLY STROWGER AUTOMATIC TOLL TICKETING GIVES YOU THESE 3 FEATURES!**

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2. **Throws out incomplete calls before tape is made!** Incomplete calls are not recorded. Strowger Automatic Toll Ticketing throws them out before the tape is made!

3. **Four-channel tape call data permits faster billing!** Call data is recorded on four-channel tape. This permits high-speed, low-cost machine billing.

# ...another reason why Men Choose Strowger!

Automatic toll ticketing is an important feature to the man who is selecting central office equipment. He knows that the system he buys today may have to handle a large volume of toll service tomorrow. That's why so many telephone men choose Strowger Automatic. The simple circuits and unitized construction of Strowger enable it to be adapted quickly and economically to provide automatic toll ticketing. And—Strowger ticketing equipment works directly into accounting machines without converters.

**ASK YOUR A. E. REPRESENTATIVE** for further details! He'll be glad to show you how automatic toll ticketing—as well as the other modern features of Strowger—will be important to you tomorrow. *Write Automatic Electric Sales Corporation, Northlake, Illinois. Or, call Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.*

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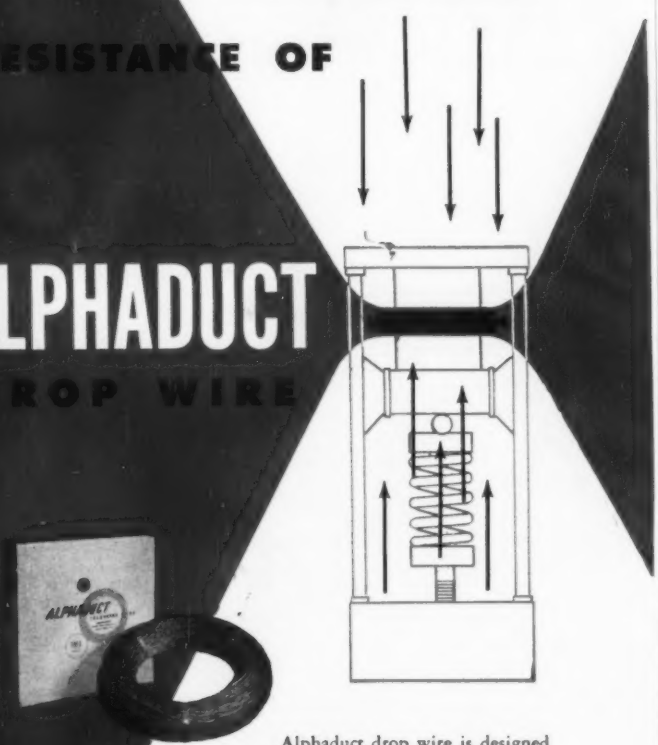
Subsidiary of GENERAL TELEPHONE

# 1500 pounds

## MINIMUM COMPRESSION RESISTANCE OF

# ALPHADUCT

## DROP WIRE



Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

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## Nigeria Enlarges Its Communications System

Nigeria plans to install 12 automatic telephone exchanges of over 1,000 lines each, 40 smaller automatic exchanges, and 34 manual exchanges and to enlarge remaining manual exchanges to complete its 6.75-million-dollar telecommunications equipment program.

Scheduled for completion in 1960, the program provides for construction of 5 million dollars worth of buildings by the Post & Telegraphs Administration.

Half of the automatic exchanges will be new installations and half will be replacements of existing manual exchanges. Underground cables for these improvements will cost an additional 2.4 million dollars. New and expanded facilities will provide a plant for connection of an additional 30,000 subscribers when the program is completed.

Upon completion of the "Main Line VHF (Very High Frequency) Scheme" portion of an integrated development plan drawn up in 1950-51, additional installations at terminals will increase the number of available channels to 36. An ultra high frequency multichannel radio system, with initial and ultimate capacities of 120 and 600 circuits respectively, will be installed between Lagos and Ibadan.

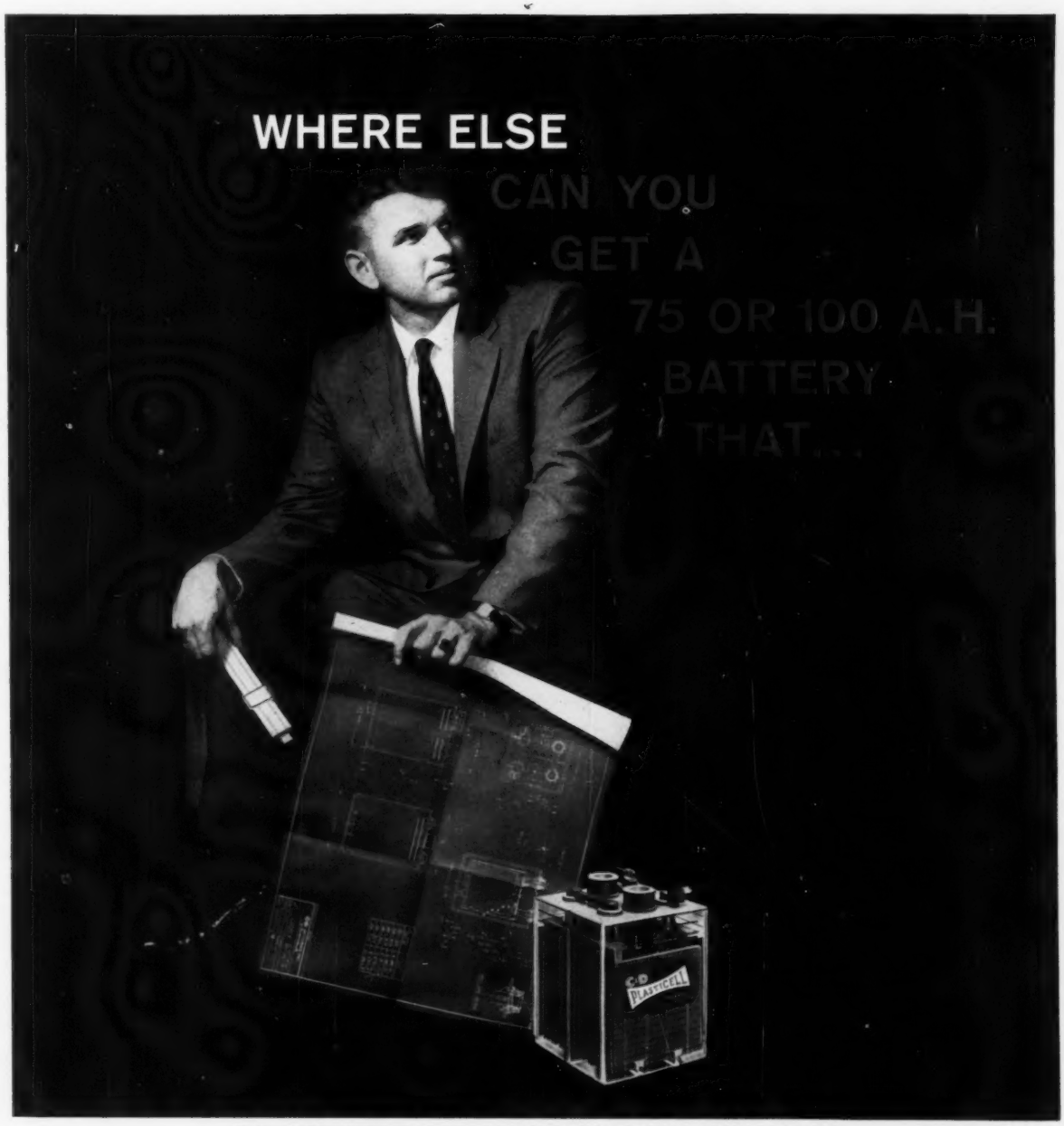
About 360 miles of new overhead line will be built to permit 12-channel carrier equipment to operate on each pair of wires, and other routes will be reconstructed for more efficient operation. Carrier equipment, using transistors instead of tubes, will be introduced. VHF radio multichannel equipment on secondary trunk routes will be installed over a route distance of 1,270 miles. Later, this system will permit direct distance dialing.

The demand for telephone service in Nigeria has exceeded the supply only in the last 10 years. Before World War II, the Department of Post & Telegraphs publicized benefits of telephone service in an attempt to stimulate interest and additional use.

During the post-war 10-year period, however, demands for service increased and the number of telephones in service and trunk-circuit mileage approximately quadrupled. Nevertheless, at the end of the period there were only 17,000 telephones in the country, or 0.6 telephones per 1,000 population. It was evident expansion of communications facilities had to be greatly accelerated if telephone services were to keep pace with the country's progress.

## Reflected Selves

"Behavior is a mirror, in which everyone shows his image."—GOETHE.




Pictured above is one of the newest additions to the C&D PlastiCell line—2D-100.

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**C & D PLASTICELL**—Where can you get it? Ask your nearest C&D representative—or specify the battery by name to your telephone equipment supplier.

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*T.M.

# REA Approves Five Loans, Totaling $1,386,000

THE RURAL Electrification Administration has approved the following telephone loans:

Chester Telephone Co., Manchester, N. H.; $155,000; July 28.

These funds will enable the borrower to improve service for 144 rural subscribers and to furnish initial service to 83 farm families. In order to provide this additional service the company plans to serve additional territory. The families who will get improved service are now receiving magneto service from the Windsor Telephone Co., Hillsboro Upper Village. The borrower plans to acquire and integrate these facilities.

A new automatic central office is scheduled at Hillsboro Upper Village. REA loans to this borrower total $690,000 which will enable it to furnish new and improved service to 1,229 subscribers. The Chester exchange is now providing dial service to over 300 subscribers and the Weare area is scheduled for cutover late this year. Hillsboro Upper Village is the third exchange.

John S. Rand is president and manager of the Chester Telephone Co.

•

Garretson (S. D.) Cooperative Telephone Association; $194,000; July 28.

These and funds from a prior loan will be used to improve service for 237 rural subscribers and to furnish initial service to 82 farm families. The families who will get improved service are now receiving magneto service from the Brandon Telephone Co. which has recently been acquired by the borrower. Funds are included in this loan to reimburse the borrower for acquisition cost.

The Garretson cooperative plans to construct a new automatic central office at Brandon. Funds are also provided in this loan to construct new headquarters facilities in Garretson to serve the whole system.

The two REA loans to this borrower total $510,000 which will make possible new and improved service to 966 rural subscribers in South Dakota and Minnesota. The system will consist of exchanges at Brandon and Garretson.

I. J. Henjum is president of the Garretson Cooperative Telephone Association and Raphael Scharus is manager.

Deuel Telephone Cooperative Association, Clear Lake, S. D.; $292,000; July 28.

These funds will be used to improve service for 129 farm families, now receiving switcher service from the borrower, and to furnish initial service to 102 rural families in its present service area.

The borrower plans to acquire with loan funds the Farmers Pioneer Telephone Cooperative, Elkton, S. D., and to receive by abandonment the facilities of three other local switcher companies in the vicinity of Lake Benton, Minn.; and Elkton. These four small companies now are owned by the 129 families who will receive improved service.

Dial service will be extended the 231 additional subscribers from the borrower's existing exchanges. REA loans to the Deuel cooperative total $2,063,000 with which it plans new and improved service for 3,439 rural subscribers in South Dakota and in Minnesota. The completed system will consist of eight exchanges in South Dakota and two in Minnesota. All exchanges are now in operation.

Karl Fromm is president of the Deuel Telephone Cooperative Association and Newman E. Jacobson is manager.

•

Wes-Tex Telephone Cooperative, Stanton, Tex.; $450,000; July 30.

The borrower will use this loan to improve and expand telephone service. The funds will enable the borrower to furnish initial service to 234 rural subscribers and to improve service for 117 existing subscribers in the area served by the SCAVK Telephone Co. which the Wes-Tex cooperative has recently acquired. These facilities consist of automatic exchanges at Ackerly and Knott.

A new automatic central office is scheduled at Ackerly to serve both exchange areas. Funds are included in this loan to reimburse the borrower for the SCVAK acquisition.

In addition, the cooperative plans to establish a new exchange at Vincent and to construct a new automatic central office to serve 159 new rural subscribers in that community. A portion of these loan funds will be used to complete the authorized system.

Loans to the Wes-Tex company amount to $1,009,000 which will benefit 1,123 rural subscribers. The completed system will consist of six automatic exchanges.

A. A. McKinney is president of the Wes-Tex Telephone Cooperative and O. B. Bryan is manager.

•

Mashell Telephone Co., Inc., Eatonville, Wash.; $295,000; July 30.

The new borrower proposes to use these funds to improve service for its 499 existing subscribers, and to furnish initial servce to 305 rural families. The company presently furnishes dial service to its subscribers.

Additional automatic equipment will be installed in the existing central office to handle the increased number of subscribers. A portion of the loan will refinance the borrower's existing indebtedness incurred as a result of converting the present system to automatic operation.

Arden O. Haynes is president and manager of the Mashell Telephone Co.

## Education Students Confused About Basic Information

A professor of economics at a well-known university which specializes in teacher training reported recently in an article in the *Chicago Daily News* on an information experiment he conducted. He asked 80 freshmen who are preparing to become teachers to define "capitalism." Almost all of them, he found, "not only called capitalism a form of government, but they also thought it an evil and dangerous form of government."

One student, for instance, said: "Capitalism is more on the dictator type of government." Another said: "Capitalism is the extreme measures that are taken by a group, country or even a single person. . . . It can be dangerous if allowed to spread into the wrong hands." Another said: "I am sure there are many places where capitalism is going on at the present time, and if this practice should ever become nationwide, the country, is in for a lot of trouble." Still another said: "Capitalism . . . is on the order of communism. . . ."

Remarking on this article, the *Industrial News Review* says "it would be hard to find more horrible examples of sheer ignorance combined with semi-literacy. And they came . . . from college students who want to become teachers and guide the minds of this country's most important assets—its children. Something is indeed wrong with American education . . ."

Making out bills is a snap when toll tickets and bills are photographed on a Recordak Microfilmer

Subscriber easily understands charges on bill with actual toll tickets in hand

# Easier for you... and for your subscribers

No need to describe each toll call on a subscriber's bill! Now, any telephone company—even with as few as 500 subscribers—can save time, effort and money with the simple Recordak Toll Billing System.

It's so easy! Here's all you do: Add up toll charges and enter total and tax on bill . . . then photograph tickets and bill in a Recordak Microfilmer—clip them together and mail to subscriber!

That's it! With this Recordak Billing System, you cut billing costs 45% or more . . . eliminate hours of tedious transcription work . . . reduce chance for error to strictest minimum. And you have a file record that's complete . . . easy to check on a Recordak Film Reader!

Subscribers like to get the toll tickets with their bill. It takes the mystery out of phone charges—and ends questions about forgotten calls!

Learn why more than 500 independent companies have switched to the Recordak Toll Billing System. Case histories will be sent to you on request . . . show just how you can save with Recordak Microfilming. Recordak Microfilmers sell for as little as $550; also available on a convenient low-cost monthly rental plan.

**RECORDAK**

*(Subsidiary of Eastman Kodak Company)*

**originator of modern microfilming—**
***now in its 31st year***

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Price subject to change without notice.

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Gentlemen: Please send free case histories on Recordak Toll Billing System. CC-8

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# Dial Telephones Relieve Traffic Overload in Taiwan

INTRODUCTION of automatic telephone installations in Taiwan (Formosa) is making its impact on day to day life on Taiwan, and completion soon of a new 20,000 line exchange will help considerably.

Acceleration of the industrial tempo there, and an attendant concentration of heavy population in the major cities — Taipei, Kaohsiung, Taichung, Keelung and others—has put tremendous demands on the telephone system. But Free China's Telecommunications Administration, which operates all telephone, telegraph and overseas communications, now sees its problems pretty well under control.

Domestic telephone calls have increased 10 per cent in a single year; overseas calls, mostly for private business, have also been stepped up. Now the installation of new equipment, the extension of dial systems and diversification of service facilities is easing pressure on the system.

The Telecommunications Administration last year (1957) built a new exchange in Taipei, provisional capital of Free China. Eventually it will have a capacity of 20,000 lines, all automatic, in addition to central switchboard services long in use. Only 2,000 of them are now in use; another 4,000 will be available the end of this year. But telephone officials, however, believe it may be several years before the entire capacity can be installed and put into operation.

This new building is adjacent to the present Taipei central exchange and was built at a cost of $2,400,000. Part of it, $75,000 in U. S. currency, was advanced by the International Cooperation Administration (ICA) together with an additional equivalent of $1,217,000 of Taiwan currency from local counterpart funds toward Japanese barter credits needed for some of the new equipment.

Taiwan's southern industrial center — Kaohsiung — already has complete dial telephone service, as has the town of Cha-yi. Dial service will be completed in Taichung by the end of this year and Tainan, originally the capital of Taiwan, will be converted to automatic operation by the end of 1959.

With the new services in operation, telecommunications officials expect the 10 per cent annual increase in traffic to continue for a while. "Last year the system handled 10,800,000 local calls," a company official said, "an increase of 1,400,000 over 1956. We expect the same ratio to continue as services are expanded."

He pointed out that where once people queued up at the exchanges to make calls, or crowded at the few private homes that were equipped with lines, the introduction of coin box and booth units has relieved the jam. A total of 265 coin box-booth units are now in operation; an additional 150 paystations will soon be added, and there are now 150,000 lines for the more than 40,000 subscribers and public paystation users.

**Coin box telephone booths are becoming popular in Taipei and other cities on Taiwan.**

Local calls cost only 50 cents in Taiwan currency, about 1½ cents in American money. But the volume of traffic in telephone calls, telegrams and overseas messages handled by the administration is enough to return a substantial profit on the operation. In a single year, the communications system earned enough to turn over a 15-million-dollar profit to the government treasury. The communications system, like electric power services, is completely a government operation.

Taiwan's communications system operates 150 offices and exchanges, clearing 15 million domestic telegrams as well as 5 million words of overseas messages in addition to its telephone calls.

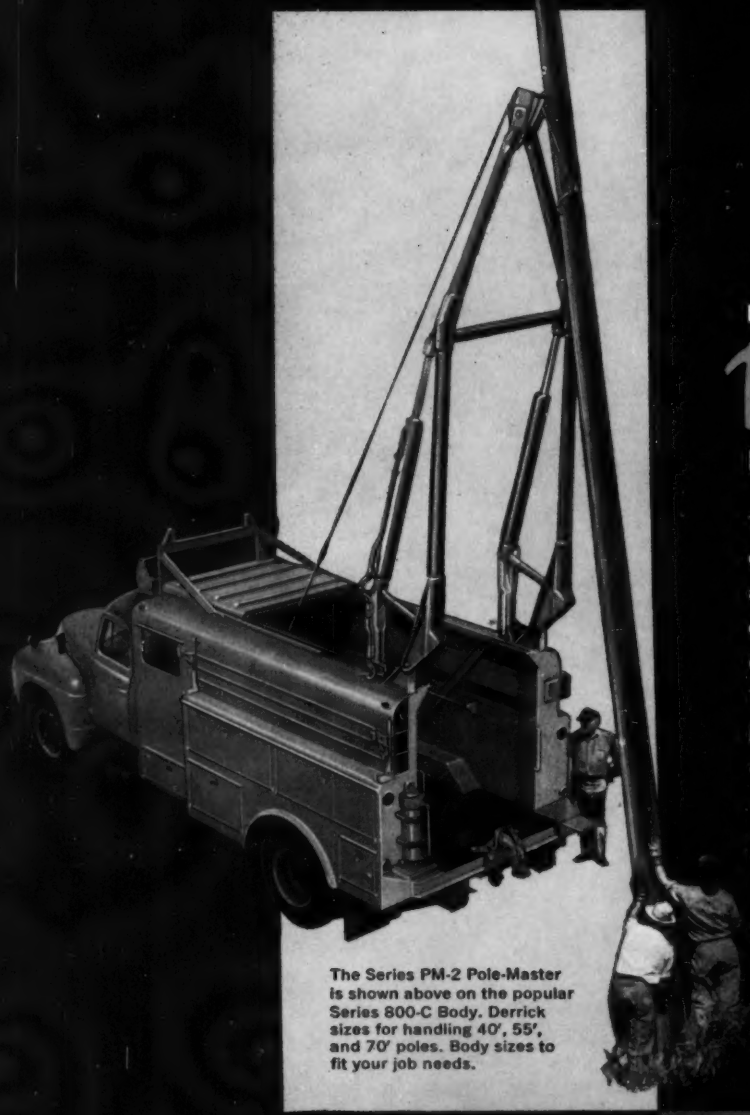
Overseas telephone calls, largely those of private businesses operating on Taiwan, are routed first through the short wave channels of the system, then transmitted through the facilities of the Chinese Government Radio Administration (CGRA). The circuit to mainland United States connects at Oakland, Cal., thence is routed all over the country, and linked to Central and South American countries. It is also picked up and transmitted across the Atlantic to the European continent.

Other radio telephone links reach Hong Kong, Tokyo, Manila, Korea and Okinawa—a communications setup that brings Free China into contact with 38 nations throughout the world.

The entire operation requires a labor force of 4,325 employes for the system which has about 40,000 miles of telephone wires throughout Taiwan.

**Typical crew of Taiwan linemen in rural areas extend system, make repairs. The Telecommunications Administration has more than 4,000 employes on the job, with some 40,000 miles of telephone lines installed over the 250-mile long island of Taiwan.**

# MUSCLES OF STEEL



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Touch a lever, and presto . . . powerful hydraulic cylinders raise Pole-Master from its carrying position and move it to any point within a 190-degree operating arc. Seconds later, you're all set to latch on to the load with the winch line and hoist away! To move the fully-powered Pole-Master under load, just flick the control lever again . . . that's all there is to it.

The detailed story of Pole-Master's many cost-cutting features is yours for the asking. Send for it today!

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Guided auger digs straight, clean holes in practically any soil . . . even frozen ground and hardpan. Digs as deep as 9' 4". Can be used at various angles, too.

# Courts and Commissions

## Northwestern Bell Appeals Rate Denial In S. D.

A suit seeking about half a million dollars in South Dakota telephone rate increases was filed in Pierre Circuit Court by Northwestern Bell Telephone Co. on July 30 (TELEPHONY, Aug. 9).

The move was made after the South Dakota Public Utilities Commission denied the company's application for a rehearing on a request for authority to increase its rates.

The company's suit asked the court to permit a rate of return reasonable with Northwestern Bell's invested capital in the state.

Following the commission's denial, R. A. Deveraux, vice president and general manager of South Dakota operations, said: "We have no alternative but to appeal the commission's decision to the circuit court."

Mr. Deveraux, in filing the petition, took issue with the commission's statement that the firm's construction program was "abnormal."

"Our construction program," he said, "has been on a stepped-up basis since the end of World War II. South Dakotans are asking for and getting improved telephone service. When our construction program grows year by year and at a steady pace, it no longer becomes abnormal construction. It is part of our everyday operation. We cannot hope to attract the needed capital from investors unless they can be assured of a fair and reasonable return on their investment."

## Del. Court Rules In Favor Of Diamond States Rate Plea

Delaware Superior Court Judge James B. Carey on July 30 ruled in favor of the Diamond States Telephone Co. in allowing it $268,703 requested in its rate increase which had been denied by the Deleware Public Service Commission. The court reversed four of the commission's rulings.

The commission on Jan. 15 had denied the company $778,334 of the $1,880,000 it sought in increased rates. In arguments before Judge Carey on Apr. 18, Diamond State sought restoration of $286,703 of the amount eliminated. Judge Carey's decision makes restoration possible.

Reversed by the court were commission rulings of refusal to include cash working capital in the rate base, refusal to allow the full amount of federal income taxes as an expense, and disallowance of charitable contributions.

Also upset by the court, was the commission ruling which the company claimed "overstated" its anticipated revenues and interest based on new construction.

In its appeal last February, the company listed four reasons for the appeal:

(1) The commission order did not allow the company an allowance for cash working capital in its rate base.

(2) Charitable contributions actually made as an item of business expense were not allowed by the commission.

(3) The company alleged the commission overstated its revenues.

(4) The commission according to the company, understated federal income taxes paid by the company.

Prior to filing of the appeal, the commission had ordered the company to start making refunds. The company had been billing customers at its proposed new rates before the commission's decision was announced.

## Mutual Raises Rates, Company Sold In Ia.

The Farmer's Mutual Telephone Co. of Clarinda, Ia., will raise its rates for residential and business telephones effective Sept. 1., it was reported on July 27. This is the first increase the company has had since August, 1952.

Also in Iowa, the Maurice Telephone Co. has been purchased by the Northern Iowa Telephone Co., Sioux Center.

## Institute EAS In N. C.

The North Carolina Telephone Co., Matthews, on August 3 switched its Norwood exchange to automatic operation, and with the dial service, subscribers have extended area service between Norwood and the Albermarle, New London, Badin and Oakboro exchanges of the Concord Telephone Co.

## Protest $20 Service Deposit In Wisconsin

A Milwaukee attorney's complaint that a $20 deposit required by the Wisconsin Telephone Co. for telephone installation is "unreasonable and illegal" was to have been heard by the Wisconsin Public Service Commission at Madison on Aug. 13.

Harvey L. McCormick complained about a company rule which provides that it may require an applicant for service or a customer to make a suitable deposit as a guarantee of the payment of charges.

The Wisconsin Telephone Co. told the commission that the deposit was required of McCormick because he owed $27.52 when his telephone service was suspended Feb. 12 for nonpayment of the bill.

## Western Reserve Granted Bond Issue OK in Ohio

The Western Reserve Telephone Co., Hudson, received permission from the Ohio Public Utilities Commission to issue $800,000 worth of first mortgage bonds bearing 4¾ per cent interest due in 1980, it was reported on July 25.

The company serves an area between Cleveland and Akron. Proceeds from the issue will be used for working capital, to retire short term notes, and to reimburse the treasury for past expenditures for improvements.

## General of Missouri Asks $585,000 Rate Increase

The General Telephone Co. of Missouri has filed a request for $585,000 in increased rates with the Missouri Public Service Commission, it was reported on Aug. 5.

The company was last granted a rate increase in 1954 and since then has spent 5.9 million dollars on gross additions that raised investment per telephone from $167 to $279 according to operating vice president W. T. Autry. He said that the 1954 increase promised a return of 6.88 per cent in investment but now is little better than 4 per cent.

Exchanges involved include Columbia, Amazonia, Avenue City, Bolckow,

Clark, Cosby, Easton, Fillmore, Gower, Helena, Kingston, Queen City, Harrisburg, Rosendale, Sturgeon, Turney, Wayland, Whitesville, Braymer, Crane, Hamilton, Lawson, Memphis, Unionville, Cameron, Kahoka, Plattsburg, Centralia, Macon, and Savannah.

Using Columbia as an example, rates would be as follows:

| | *Old* | *New* |
|---|---|---|
| One-party residence ..... | $3.00 | $ 5.25 |
| One-party business ..... | 7.25 | 10.50 |

## Two Companies Get Sale OK's In Mo; Set Hearing For Third

The Missouri Public Service Commission on Aug. 1 granted authority to the Galena Telephone Co. to sell its property to the Modern Telephone Co., Springfield.

Also on Aug. 1, the Modern company was authorized to purchase the Hurley Telephone Co. (TELEPHONY, Aug. 9).

On Aug 6 the commission was scheduled to hear the application of the Clearfork Telephone Co., Garden City, to sell its Garden City, East Lynn and Latour exchanges to the Leewood Telephone Co., Kansas City.

## Approve Sale of Central Company's W. Va. Exchanges

The West Virginia Public Service Commission on July 24 approved the sale of all the West Virginia telephone property of the Central Telephone Co., Charlottesville, Va., to the General Telephone Co. of the Southeast (TELEPHONY, July 19).

The exchanges, which serve 7,030 subscribers, are Petersburg, Capon Bridge, Levels, Romney, Moorfield, Wardensville, Harpers Ferry, Charles Town, Shepherdstown, Fort Ashby, Burlington, and Paw Paw.

## Doctor Sues Illinois Bell Over Directory Listing

The Illinois Bell Telephone Co. and a company printing its telephone books in 1957 are named in a $25,000 damage suit by a Peoria physician filed on Aug. 1 in the circuit clerk's office.

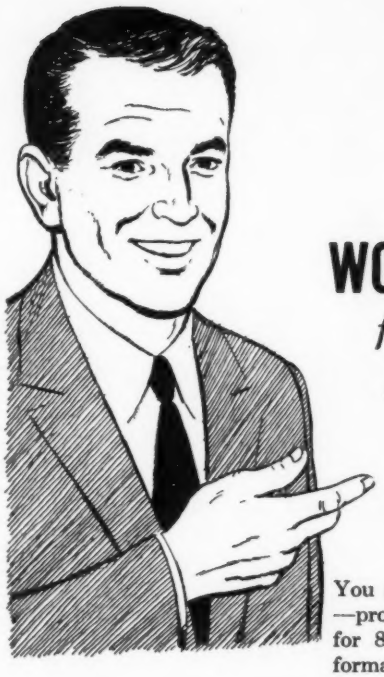
Dr. J. William Hendrix, gynecologist, complains that his office telephone number in the white pages of the telephone book was listed incorrectly.

He charges further that his name was omitted in the alphabetical listings in the classified pages of the telephone directory.

## Set Hearings on Increase in Vt.

The Vermont Public Service Commission has scheduled hearings to start

*(Please turn to page 52)*

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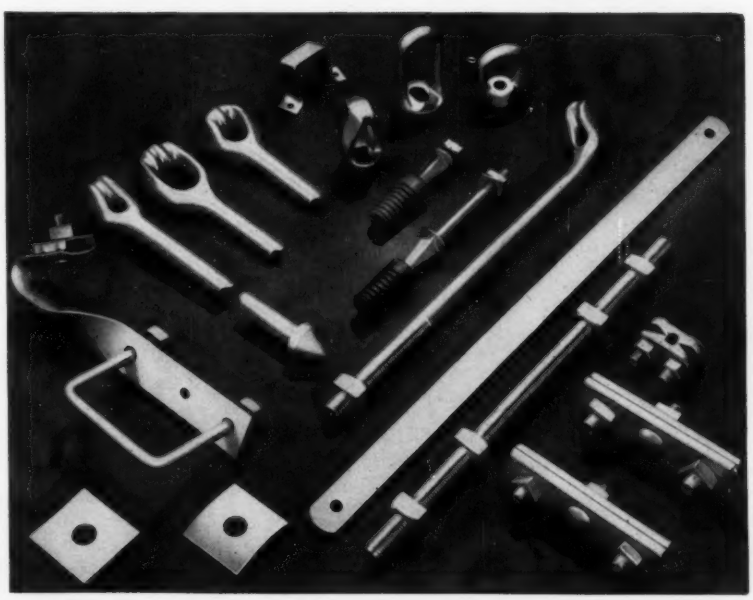


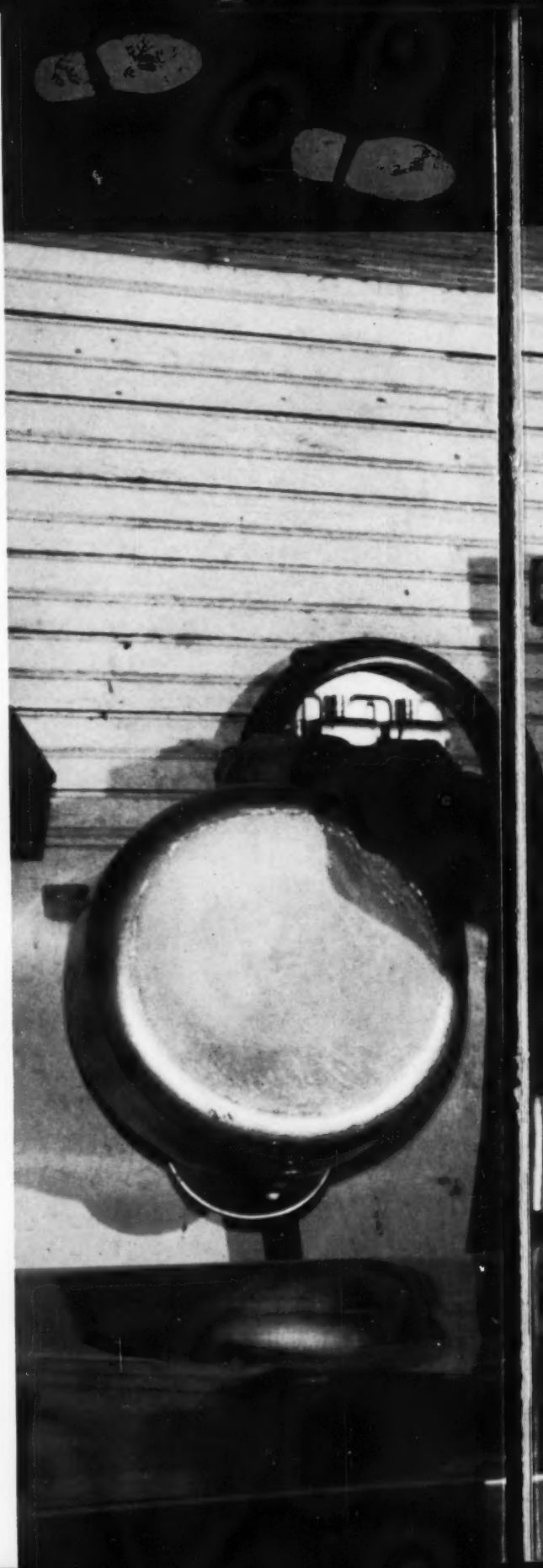
# The steps that Dairyman Powell saves make good reading for farmers

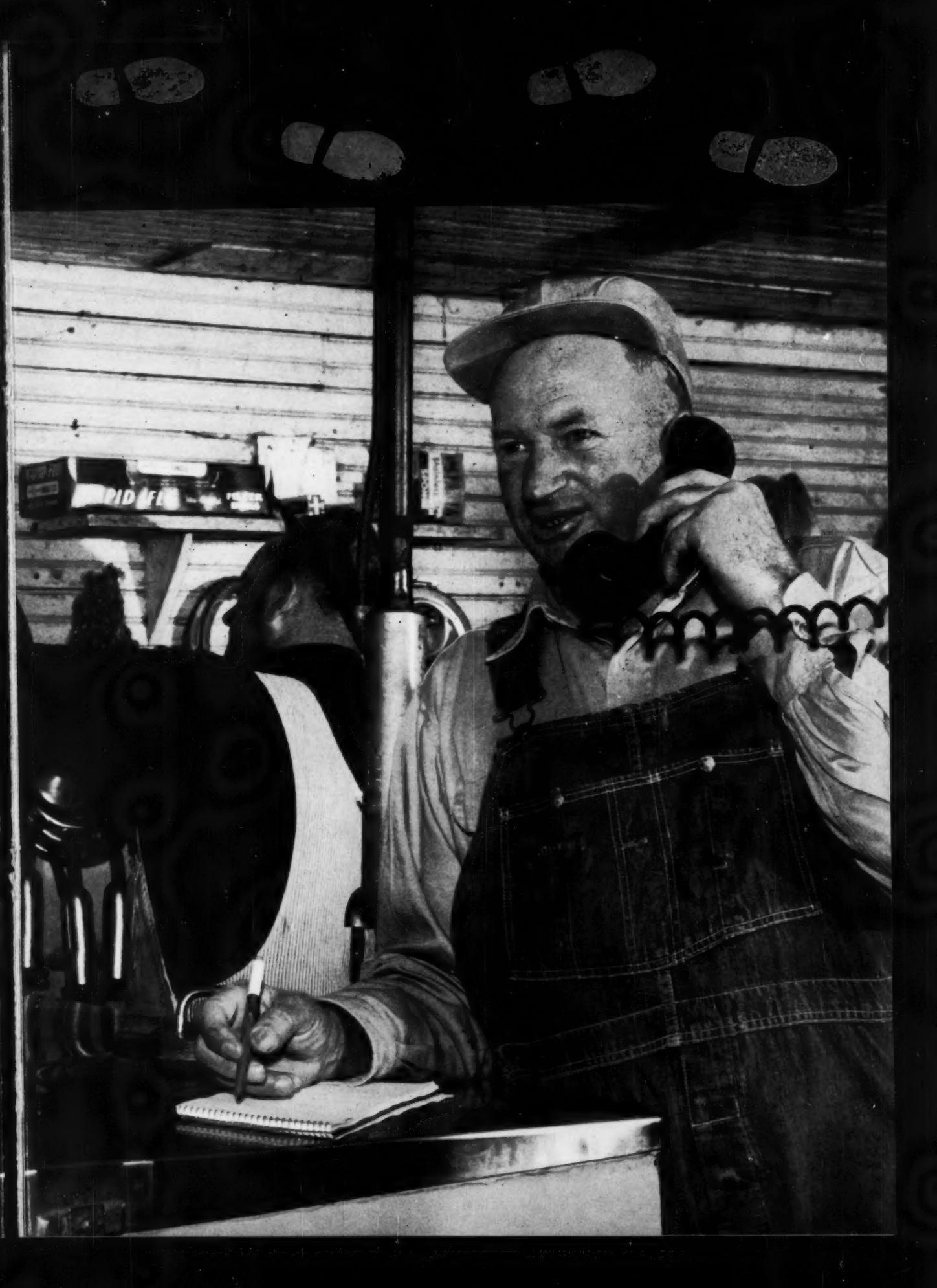
The milkroom on Sylvester Powell's Waseca, Minnesota, dairy farm is about 50 yards from his house. There was a time when the farm's business had to be transacted through the living room telephone. The men tracked to the house and through the kitchen to make and receive some 6 to 8 telephone calls a day. They walked over 100 miles a year just making calls!

Now an extension line to the milkroom brings the telephone to the men—and saves that 100 miles a year. This month farmers throughout the country are reading about Sylvester Powell's milkroom telephone in one of a series of Bell System advertisements running in 11 widely-read farm magazines.

Factual advertising such as this should help all of America's telephone companies convince farmers that extension phones are necessary tools on the modern farm.

**BELL TELEPHONE SYSTEM**





Sept. 16 in a dispute over a 1.5 million dollar annual rate increase sought in Vermont by New England Telephone & Telegraph Co.

## OK Two Rate Increases; Two Sales In Minnesota

The Minnesota Railroad & Warehouse Commission on Aug. 4 approved a rate increase for the Farmer's Mutual Telephone Co., Cerro Gordo.

The Farmers' company recently purchased the Marietta exchange and with an REA loan of $274,000 proposes to convert that exchange to automatic operation.

The company also proposes to establish extended area service (EAS) between Bellingham and Marietta; between Bellingham and Cerro Gordo; and between Bellingham and Odessa. This EAS service is included in the increased rates for Bellingham and Cerro Gordo.

Currently, the company's three exchanges serve 214 local and 745 rural stations. After the Marietta exchange is converted to automatic operation, the company will serve 326 local and 832 rural company owned stations.

The company's present net operating revenues are $57,315. Upon conversion of the Marietta exchange and provision of EAS, the net operating revenues will be $89,470. Total expenses will increase from $52,223 to $66,340. Net income will rise from $5,092 to $23,130 giving the company a 3.37 per cent return on a rate base of $685,680.

Old rates and new rates to be effective on conversion and EAS are as follows:

| Bellingham (Automatic) Net | *Old* | *New* |
|---|---|---|
| One-party business | $7.50 | $8.75 |
| Two-party business | 6.75 | 8.00 |
| Multi-party rural business. | 6.00 | 7.25 |
| One-party residence | 5.00 | 5.75 |
| Two-party residence | 4.25 | 5.00 |
| Four-party residence | 3.75 | 4.50 |
| Multi-party rural, residence metallic | 4.50 | 5.25 |

| Marietta | *Old* (Gross) Manual | *New* (Net) Automatic |
|---|---|---|
| One-party business | $5.25* | $8.50 |
| Two-party business | 4.75 | 7.75 |
| Multi-party rural business | 4.50# | 7.00 |
| One-party residence | 3.50* | 5.50 |
| Two-party residence | 3.00 | 4.75 |
| Four-party residence | 2.50 | 4.25 |
| Multi-party local residence | 2.25 | |
| Multi-party rural residence metallic | 3.50# | 5.00 |
| Multi-party rural residence grounded | 2.50 | |

*Optional, common battery—an additional charge of 50 cents per month for this service.

#an additional charge of 25 cents per month for a handset instrument.

| Cerro Gordo (Automatic) Net | *Old* | *New* |
|---|---|---|
| One-party business | $7.50 | $8.25 |
| Two-party business | 6.75 | 7.50 |
| Multi-party rural business. | 6.00 | 6.75 |
| One-party residence | 5.00 | 5.25 |
| Two-party residence | 4.25 | 4.50 |
| Four-party residence | 3.75 | 4.00 |
| Multi-party rural residence metallic | 4.50 | 4.75 |

•

Also on Aug. 4, the commission approved a rate increase for the Euclid Telephone Co. The Euclid company has full EAS with the Crookston exchange of the Northwestern Bell Telephone Co. Its automatic exchange at Euclid serves 32 local and 69 rural company owned stations.

Under the old rates, the company had net operating revenues of $3,662, while with the new rates, net operating revenues will increase to $4,088. Total expenses with the old rates were $3,496, with the new rates they are $3,513. Net income with the old rates was $166, under the new rates it increases to $575, providing a 3.80 per cent return on a rate base of $15,103.

Old and new rates are as follows:

| | *Old* | *New* |
|---|---|---|
| Individual line business | $4.00 | $4.50 |
| Multi-party rural residence | 3.00 | 3.50 |

•

The commission also authorized the Central Telephone Co., Fairmont, to sell 30 rural stations connected to the Central company's Triumph exchange to the North Star Telephone Co., Mountain Lake.

Sidney R. Hammer, the owner of the Hills Telephone Co. was granted authority to sell the Hills exchange to the Hills Telephone Co., Inc. The Hills exchange serves 280 stations.

## OK Two Sales In Kentucky

The Kentucky Public Service Commission on July 25 authorized the purchase of the Rockcastle Telephone Co., Mt. Vernon, and the Science Hill Telephone Co. by the Northeastern Telephone Corp. of London.

## OK Rate Raise In Alabama

The Alabama Public Service Commission on July 24 allowed the Graceba Telephone Co., Ashford, to raise its rates by $2,620. The company originally requested a $3,870 increase in gross annual income.

## Seek Rate Increase in Wis.

The Public Service Commission of Wisconsin on Aug. 11 was scheduled to hear an application of the Pacific & Wyocena Cooperative Telephone Co., Wyocena, for authority to increase rates.

## Authorize Raise; Sales Ask Loan In Nebraska

On July 23, the Nebraska Railway Commission approved a rate of $1.50 for all classes of service at Inavale, which is served by the Farmers Creek Telephone Co. The company has 18 shares of stock outstanding at a par value of $50. Each subscriber on the line owns one share of stock, with the exception of one who would not purchase a share.

On July 30 the commission approved the transfer of properties of the Paxton Telephone Exchange and the Madrid-Elsie Telephone Exchange of Paxton to the Chrisp's Telephone Co., Paxton (TELEPHONY, Aug. 2). Elmer J. Chrisp becomes the sole common stock owner and Bina L. Chrisp the sole preferred stock owner. The company will serve exchanges at Paxton and Madrid. It requested permission from the commission to obtain a loan from the Stromberg-Carlson Co. for modernizing the property and converting it to automatic operation.

## Court Orders Damages Paid To Two Ohio Companies

The Meigs County (O.) Common Pleas Court on July 30 ordered Evelyn Lucke, Common Pleas court clerk, to pay damages to the General Telephone Co. of Ohio, Marion, and to the Citizens Telephone Co., for equipment of those firms destroyed by David L. Connor while in the perpetration of a crime.

Damages in the amount of $40.50 were ordered to be paid to the General Telephone Co. for equipment destroyed by Mr. Connor in burglarizing pay phones at Beacon Service Station, Shamrock Motel and Swatzel Service Station. The sum of $100.20 was ordered paid to Citizens Telephone for damages to one of its pay stations.

The money was ordered paid from funds deposited with the Meigs county clerk of courts by the defendant David L. Connor. The court ordered also that the remainder of funds deposited by the defendant after payment to the telephone firms be paid to Crow, Crow & Porter, Attorneys.

## Independents Discuss New Toll Ticket Plan

Representatives of the United States Independent Telephone Association and the Bell System met on July 24 and 25 in Lincoln, Neb., to discuss the effect on the entire telephone industry of the recently adopted plan of Bell System telephone companies to change the present method of preparation of toll tickets and the so-called "mark-sensing" of tickets.

Members of a USITA sub-committee attending the meeting were I. J. Devoe of Lincoln, chairman, and chairman of the association's Accounting Committee; P. H. Henson of Lincoln, chairman of the USITA Engineering Committee; K. L. Lawson of Lincoln, chairman of the USITA Commercial Committee; and Robert Coffman of Michigan representing the USITA Traffic Committee.

On behalf of the Bell System, three members of the American Telephone & Telegraph Co. were present—Harry Disston, assistant staff coordinator, Bell-Independent relations; C. L. Schwart of the commerical department, G. E. Hart of the traffic department; and J. B. Black of the accounting department.

The rapidly increasing installations of Direct Distance Dialing (DDD) equipment has hastened the adoption of mechanical means for revenue accounting operations, since the equipment automatically provides, in punched or perforated tape from, a record of each toll message which may be mechanically interpreted and billed. It is expected that where DDD is in use, about one-half of the toll message volume will be mechanically ticketed and the other one-half will continue to be operator ticketed because of the quantity of person-to-person, collect credit and paystation calls, etc. according to M. Devoe.

The greatest economy can be realized from the various means of mechanical accounting processes when the source information may be mechanically interpreted. Since "mark-sensing" of toll tickets by an operator is machine readable, each ticket so prepared may be mechanically processed and integrated with the processing of DDD tickets. "Mark-sensing" is done by marking information with a pencil, designed for that purpose, in designated areas which is then interpreted and transferred to a punched card, M. Devoe stated.

This change in form, style, and size of ticket involves the whole telephone industry. Any telephone company which receives toll tickets from a connecting company for billing purposes, may, in the future, receive "mark-sense" tickets, Mr. Devoe said.

It is the purpose of the USITA subcommittee, in cooperation with AT&T representatives, to acquaint the Independent telephone industry with the implication of the "mark-sense" toll ticket plan. The committee will stress the need for uniformity in the size, form, style, etc. of "mark-sense" tickets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Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

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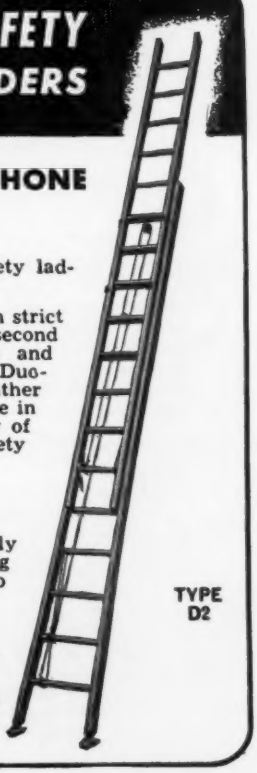
Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



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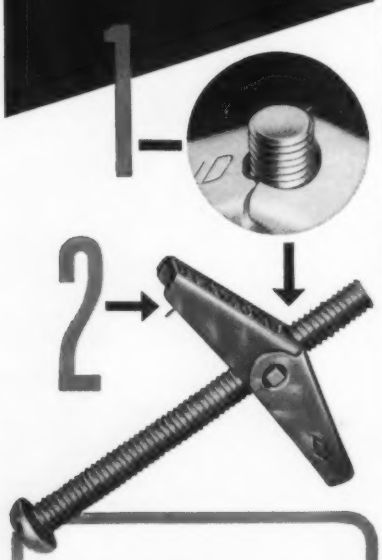

**1 Patented Feature** — Wings butt together forming a truss rather than bearing against the bolt and permit easy tightening even under load.

**2 Wings hold at set angle.** A special anti-turning prong on one wing allows you to position wings at any horizontal or vertical angle and prevents wings from turning with bolt during installation. Saves time and tempers.

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that may be used by either Bell or Independent companies. The committee will also make recommendations on methods to assist the smaller independent companies in adjusting their operations so that they may make economic and efficient use of the ticket plan. The report of the sub-committee has not yet been made to the USITA. The report on the committee's findings and recommendations will be made at the association's October convention.

## Obituary

A. J. CURREN, 81, who headed the Elyria (O.) Telephone Co. for 25 years died suddenly on July 29 at his home.

Born Aug. 6, 1877, at Delaware, O., Mr. Curren went to Elyria in 1905 to take charge of the telephone exchange there. The company was only eight years old but in that period the number of subscribers had leaped from 100 to 1,000.

The year Mr. Curren went to Elyria was also the beginning of an era of industrial growth with the resulting demand for installation of new telephones and the building of new lines. During the next 12 years the number of telephones increased at the rate of 200 per year.

Mr. Curren retired in 1941. Survivors in addition to his widow are a son, Gilbert J. Curren, and a grandson, David B. Curren, both of Lake Bluff, Ill.

## TEST DESK GIRL

**She answers calls in a low sweet voice.**

**The reason why? She has no choice.**

**She must take bitter with the sweet—**

**Hour after hour 'til the day's complete.**

**The "gripes" and "grumbles" she records**

**Gives yen to use some naughty words.**

**But even so she does her best**

**To give each call the proper test.**

—By Edith A. Brown, an employe of the Richmond (Ind.) Home Telephone Co.

## Convention Calendar
## 1958

| *Association* | *Date* | *City* | *Hotel* |
|---|---|---|---|
| Michigan | Sept. 10 and 11 | Grand Rapids | Pantlind |
| Arkansas | Sept. 15 and 16 | Hot Springs | Arlington |
| Rocky Mountain | Sept. 17, 18 and 19 | Salt Lake City | Utah |
| West Virginia | Sept. 24 and 25 | Davis | Blackwater Lodge |
| North Carolina | Oct. 6 and 7 | Pinehurst | Carolina |
| USITA Annual convention | Oct. 13, 14 and 15 | Chicago | Conrad Hilton |
| Virginia | Oct. 30 and 31 | Roanoke | Roanoke |
| Oklahoma | Nov. 5 and 6 | Oklahoma City | Huckins |
| South Carolina | Nov. 5 and 6 | Clemson | Clemson House |
| Alabama-Mississippi* | Nov. 10 and 11 | Birmingham, Ala. | Thomas Jefferson |
| Georgia | Nov. 12 and 13 | Savannah | General Oglethorpe |
| Florida | Dec. 4 and 5 | St. Petersburg | Soreno |

## 1959

| | | | |
|---|---|---|---|
| Minnesota | Feb. 15, 16, 17 and 18 | Minneapolis | Leamington |
| Texas | Mar. 2, 3 and 4 | San Antonio | Hilton |
| Kentucky | Mar. 3 | Lexington | Phoenix |
| Iowa | Apr. 7 and 8 | Des Moines | Fort Des Moines |
| Ohio | Apr. 13, 14 and 15 | Columbus | Deshler Hilton |
| Illinois | Apr. 20 and 21 | Peoria | Pere Marquette |
| Nebraska | Apr. 21 and 22 | Unannounced | Unannounced |
| Kansas-Missouri* | May 25 and 26 | Kansas City, Mo. | Continental |
| Pennsylvania | June 1, 2 and 3 | Buck Hill Falls | Buck Hill Falls Inn |
| California | June 3, 4 and 5 | Los Angeles | Ambassador |
| New York | June 15, 16 and 17 | Unannounced | Unannounced |

*Joint Convention

# ABC OF THE TELEPHONE

*Concluded from page 23*

(1) No slack should be allowed to slip back into the machine-spun sections of the lashing wire.

(2) The spirals placed by hand should be no longer than the spirals placed with the spinning machine.

(3) The hand-wound spirals should be no shorter than 6 inches, as shorter spirals tend to create a cutting action in the cable sheath at the point where the spiral is short.

### *Spinning Plastic Cable*

Plastic cable can be lashed in much the same way as lead cable. Generally, the only difference is the closer spacing of the spiral wraps. This is made possible by placing two lashing wires at the same time. As a rule, two spinning machines are fastened together and pulled across the span at the same time. Both machines are adjusted to space the spiral wraps the same distance apart. The wraps placed by the second machine fall midway between the wraps placed by the first machine.

A typical specification for the placement of plastic cable requires a 6M strand under a tension of 1,500 pounds, or a 10M strand tensioned at 3,000 pounds. The cable is placed under enough tension to remove the excess slack after it has been raised to the strand and supported with temporary rings. This cable can also be lashed as it is raised into position, as previously described for lead cable.

Plastic cable is lighter than lead cable and, for this reason, can be placed in spans that generally are longer than spans used with lead cable. There are certain factors, however, that must be considered in determining span lengths, in addition to the weight of the cable itself, as follows:

(1) The light weight of plastic cables makes them more susceptible to movement in the wind than heavier lead cables.

(2) Plastic cables are larger, size for size, than lead cables. Thus, more surface area is exposed to the wind.

(3) The surface of plastic cable tends to roughen somewhat after it has been placed in service. This rougher surface offers increased resistance to the wind.

The net effect of these conditions is that plastic cable has a greater tendency to move in the wind than lead cable. Ordinarily the movement will not be excessive if the span lengths are held to practical lengths and the spans are drawn up to specified tension. However, trouble from excessive oscillations may result when plastic cable is placed in longer spans under reduced tension.

Oscillations of the plastic cable may be observed in certain sections of the pole line after the cable is placed. Additional poles can be placed in these sections to reduce the span lengths. This generally will eliminate the oscillations of the cable. The additional poles usually will cost less than placing dampening rigs or hitches on the strand.

# MECHANIZED BILLING

*Continued from page 25*

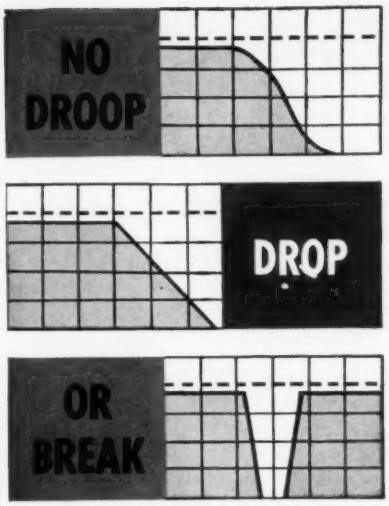
operator. Two additional staff clerks sort, add, and record bill payments. Here's how the new system works:

After a subscriber's application for service is approved, an order is issued which describes the installation and provides information needed by the installer and for accounting and directory. An Addressograph plate and the ledger card are then prepared for the subscriber. For simplicity and smoother workflow, a small, 3 x 4-inch duplicate ledger card is prepared which lists only the subscriber's name, tax, and monthly or standard billing information. The original ledger card becomes, in effect, the subscriber's history card and is permanently filed. The small, duplicate card is used as a corresponding or identifying record in the billing procedure. In our modern system it is *not* necessary to post charges to either card.

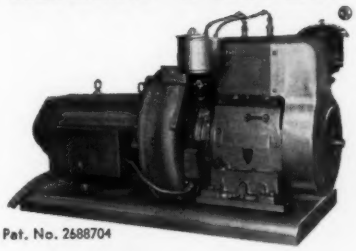
Local calls and service are charged a standard monthly rate. Long distance calls and telegrams, etc., are placed on toll tickets by the connecting company toll centers. Toll tickets charged to our subscribers are sent to us in groups or rounds in five and 10-day periods. As rounds are received they are sorted according to exchange and telephone number and subsequently added on the Duplex machine.

Here the operator lists the subscriber's telephone number on the machine, then lists all applicable toll ticket amounts. At the end of the run the total of all toll tickets must agree with the toll center invoice.

In this simple operation we accomplish two extremely important billing functions: As toll tickets are added, part of the billing procedure is being accomplished at the same time. In effect, a five-day section of the subscriber's bill is computed. After a round is totaled, a subscriber's cor-


in Communications with U. S. MICRO-POWER



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*Your Insurance Policy for . . .*

*Stable Continuous Uninterrupted*

**Communications Power**

Micro-Power operates *with* the main source of power. No time consuming "load transfers." No "power outages" *even for precious seconds!*

Micro-Power Units are available in 1500, 3000, 5000 and 10000 watt capacities. For complete information, specifications, and demonstration, write . . .

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LIGHT US POWER
OSHKOSH · WISCONSIN

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LITTLE
Giant
SLACK PULLER

For pulling slack in a messenger you need a man with the strength of Hercules, the ruggedness of Atlas, the speed of Mercury . . . or a Little Giant Slack Puller.

If you need to pull slack in a messenger for any reason, either of the Little Giant Slack Pullers, the LG1 slip handle or the LG12 ratchet handle will do the job Quick, Easy and Safe.

WRITE OR PHONE

SERVING THE GROWING INDEPENDENT TELEPHONE INDUSTRY
CABLE SPINNING EQUIPMENT CO.
3100 TOPEKA AVE.
TOPEKA, KANSAS

responding toll tickets and the corresponding section of tape are clipped together.

At the end of the month all of the sections of tape for a subscriber are sub-totaled on the machine and a 10 per cent tax is added to this amount. This becomes the amount of toll charges and tax owed by the subscriber. The amount is then entered on a toll charge statement thereby replacing the sections of tape. To insure accuracy, the total of all six toll center invoices are added and must agree with the total of all of our toll statements for the entire month.

To complete the actual pre-billing process and insure additional accuracy, the tax amounts and toll charges are listed simultaneously on the Duplex. Tax is placed on the left and toll charges on the right.

When both sides are totaled, the tax amount is subtracted from the over-all toll total to provide a cross-check of accuracy for us and the toll center.

Toll statements and duplicate ledger cards are then sent to the Sensimatic operator along with any miscellaneous charge slips for service work performed through the month. Here, the machine operator places a three-section bill into the Sensimatic and depresses the code key which describes the exchange being billed. She then enters the monthly rental charge and tax. These are standard and are picked up from the duplicate ledger card. At the same time she indexes a code or word key which describes each charge and any arrears or credits.

She then enters the toll charges and other miscellaneous charges. When the last amount is indexed, the Sensimatic automatically computes and prints the total simultaneously on the bill and proof journal. The total amount is automatically "stored" in the machine. Each separate charge is also stored according to its particular category.

At the end of the billing run, the machine automatically provides individual totals for all charges billed, plus a grand total of all charges.

Toll ticket statements are then microfilmed for the permanent record to complete the billing operation.

Each of the 12 exchanges is billed in the same manner, and toll statements and bills are subsequently stuffed and mailed.

We retain the stub portion of the bills which are sent to the revenue accounting clerk. When a subscriber pays his bill, the center and cash stub sections are stamped paid. The amount is posted to a small payment block on the accounting stub which completes the payment procedure. These stubs are then added together and the total is entered in the General Ledger. The amount of money and checks are then added and the bank deposit slip is prepared to complete the over-all operation.

Certainly versatility and flexibility are two words which describe the amazing results of our system and machines. These words represent still another example of a system that is so rapid that we have no need for cycle billing procedures; so thoroughly simplified that it involves minimum cross-checking and no duplicative efforts whatsoever. These features indicate also that modern equipment can be effectively used to accomplish even the most complex billing problems.

## Choose . . . Right or Wrong

Man must have the right of choice, even to choose wrong, if he shall ever learn to choose right. The child walks as we unwind the swaddling clothes; the building stands in its full beauty as we remove the scaffolding. Let us beware lest we make gods of the scaffolding; lest by making more intricate the wrappings of law, more strong the rods of coercion, man himself remain feeble and imperfect.—JOSIAH C. WEDGWOOD.

## Answers to Questions on Page 30

**(1) Say for example, "3578 has been temporarily disconnected at the customer's request."**

**(2) The operator should say for example, "We do not complete Aircraft Flash calls unless made from authorized telephones."**

**(3) The operator should proceed as on a call from a non-coin telephone, since the call will be billed to the called telephone. The deposit should be returned if necessary.**

**(4) An Aircraft Flash call takes the same precedence as a Priority 2 Emergency call.**

**(5) If the called telephone has not answered at the end of one minute, the operator will report the case to the service assistant or supervisor. She will continue to ring the called telephone for an additional minute at which time, if the called telephone still does not answer, she will advise the calling operator of the condition and suggest that the call be cancelled.**

# Helpful Literature

**TRAINING SERIES**—Automatic Electric Co.'s technical training series bulletins No. 802, *Fundamentals of Apparatus and Trunking*; No. 803, *Distributing Frames* and No. 820, *Manual Switchboards*, have been revised for the use of students in the company's training school.

The bulletins are 8½ inches x 11 inches and are illustrated with photographs and schematic drawings. Request HL424.

•

**TECHNICAL BULLETIN ON SATT**—Automatic Electric has also released technical bulletin No. 495, *Strowger Automatic Toll Ticketing System—Type BD*, to users of Type BD SATT Systems and those who have BD Systems on order. The 114-page bulletin carries complete descriptions and is supplemented with illustrations and drawings. Request HL425.

•

**CHARGER-BATTERY COMBINATION**—A new bulletin published by C & D Batteries, Inc. describes operation of the manufacturer's new combination power package of C & D Auto-Reg silicon charger and C & D long-life PlasticCal® lead-calcium plate batteries.

The charger-battery combination can be installed in minimum space alongside standby emergency power engines, according to the bulletin. Charger comes complete with drip-proof housing for wall or floor mounting.

Both charger and batteries are specifically engineered to work together as a unit which guarantees full power when needed, according to C & D. Up to 25 years of trouble-free service can be obtained, depending on the battery type selected.

The bulletin explains performance of both charger and battery. Curves and diagrams illustrate discharge and charging characteristics of the charger-battery combination from the time the engine demands starting power until the battery reaches full charge again. Request HL426.

•

**STATIONARY BATTERIES** — A detailed technical manual on use of stationary storage batteries has been published by Exide Industrial Division of The Electric Storage Battery Co.

The 24-page manual, *Bulletin 210*, has the first reports on recent engineering studies of the effect of temperature on battery capacity and, in addition, provides tabulated data and general information necessary for:

(1) Selection of batteries and charging equipment.
(2) Proper battery and charger maintenance.
(3) Selection of battery racks.
(4) Determination of battery discharge ratings.

Derived from experience with stationary batteries used in the electric utility industry, the information in *Bulletin 210* is applicable generally to stationary batteries for emergency power and light—in telephone central offices, laboratories, railway signaling and general industry.

The manual provides algebraic equa-

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Please have the manufacturer send me without obligation further information on the products described in the following numbers:

HL424_____; HL425_____; HL426_____; HL427_____;
HL428_____; HL429_____; HL430_____; HL431_____;
HL432_____; HL433_____.

Name.....Title.....
Company.....
Street.....
Town and State.....
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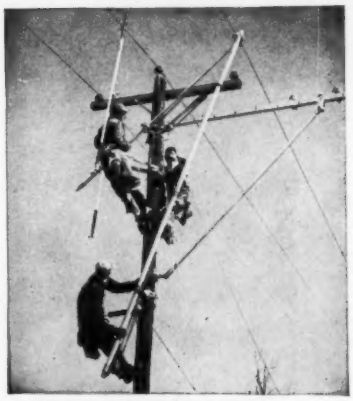
Bashlin's Quality
FOR OVER 30 YEARS



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BASHLIN Quality Body Belts with the additional Nylon Safety Feature . . . Work Safely . . . Comfortably . . . with tools in easy reach.

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BASHLIN'S Nylon and leather Safety Straps . . . Bashlin Quality, of course.

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Highest Quality For Over 30 Years
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CATALOG NO. 156

W. M. BASHLIN CO.
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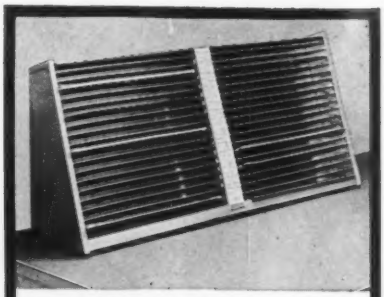


**Trouble Recorder Card Rack**

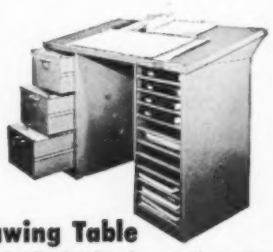
For fast orderly sorting of Trouble-Recorder cards, has 38 card slots in two banks with index strip between. Base is 38" by 8". Height 15". No. D30225-1.

**Telephone Office Equipment**

*to lighten your work and improve efficiency*

**Work Bench**

For repair, assembly, test and paper work. Top drawer divided into 24 compartments for parts and tools. Large file drawers are for circuit drawings. 54" x 25" top covered with masonite. Height 36". Drawers may be inserted from back to reverse position of kneehole. No. D29978-3.



**Drawing Table**

For circuit drawing in crossbar offices, provides central location for reference material. Masonite top is 30" x 60". Height 36" at front, 42" at rear. Three large file drawers at left for drawings. Eleven shelves at right are 2½" high, 14" wide, 18" deep for sketches, sequence charts, book type SD sheets, trunk serials, etc. No. D30326-1.

*Color of all units: Baked-on gray enamel unless otherwise specified.*

TWIN POST

Neubauer

MANUFACTURING CO.

517 LOWRY AVENUE N.E.

MINNEAPOLIS 18, MINN.


tions for selecting the proper size of batteries for specific electrical loads. It also contains a section of the effect of temperature on battery capacity ratings. This section provides a guide for specifying size of batteries—such as operate in unheated substations—which are subject to temperature variations, the company states.

Curves show how both discharge time and ampere ratings can be adjusted accurately according to specific electrolyte temperatures.

*Bulletin 210* also presents a method of selecting chargers which, in stationary applications, supply current for continuous or intermittent connected loads and for floating and equalizing battery charges.

Noting the importance of selecting the proper size of charger, the bulletin explains how to do it by formula and example. Practical tips also are given on using chargers to maintain the proper battery charge, according to Exide.

Instructions are given for preparing a battery for operation and for giving freshening, floating and equalizing charges. A four-step procedure outlines a recommended battery maintenance program.

As good maintenance, *Bulletin 210* recommends mounting stationary batteries on steel racks. Specifications for racks which can be used with Exide batteries are included.

Information is included on discharge characteristics dimensions and weights of Exide stationary batteries—with and without assembly trays. The specifications apply to Exide-manchex batteries with Manchester plante' positive plates (consisting of lead rosettes in a patented silvium alloy grid) and Exide-tytex pasted-plate types with positive plates containing silvium and calcium.

Photos of several battery installations also are included in the bulletin. The bulletin is punched for insertion in standard three-hole binders. Request HL427.

•

FLEXOPRINT—Remington Rand Division of Sperry Rand Corp. has perfected Flexoprint, a system designed to solve the production problems of cost of change and speed of publication. The entire flexoprint story is told in a recently published 20-page illustrated booklet.

In the production of directories, catalogs, price and parts lists, change is the major cost factor. With flexoprint, lists are kept up-to-date in the customer's own office by his own typist, always ready for reprinting in hours or days, the company states.

This procedure which cuts costs and production time allows for copy to be typed from source material direct to replaceable flexoprint cards. The typed cards are proofread just once, immediately after they are typed, and attached to flexoprint panels. The panels are then photographed and printed by offset lithography. Request HL428.

•

DITCHER—A 16-page, two-color folder has just been issued, describing in detail, Barber-Greene Co.'s new Model 774 wheel-type ditcher.

Ten unique features of the model 774 are described in detail in the folder. These 10 include dual-range hydra-crowd or hydraulic crowding control, flexible drawbar, a new digging wheel drive, eliminating long, wrap-around chains and assuring equal contact on both sides of the wheel.

An all hydraulic spoil conveyor drive, special, trouble-free crawler design, automatic electric overload protection, hydraulic brakes, hydraulic boom hoist and other use of hydraulics in controls. The final feature is the convertability of the model 774 wheel ditcher to the model 784 vertical boom ditcher, the company states.

Special accessories for operation in rocky ground or in "gumbo" are also described. Several pages of the folder are devoted to on-the-job illustration showing the 774 at work under a wide range of job conditions. Request HL-429.

•

POLE TREATMENT—Osmose Wood Preserving Co. now has available hollow heart treatment comprising a solution of sodium fluoride, sodium arsenate, and sodium bichromate which can be injected into the cavity under pressure, to refusal. Explanation of the process is contained in *Memorandum No. 20.*

The treatment was developed in view of the fact that the wood surrounding hollow heart decay is almost always soggy wet. It has been found that the problem can be better met by a water-soluble preservation which is capable of diffusing into and protecting the remaining sound heartwood. An oil-borne preservative, it has been discovered, is not miscible with water and does not readily penetrate heartwood.

In the past year, Osmose says, the need for internal treatment of standing poles of all species, not just pines, has become apparent when the size of the internal void is sufficiently large and fungus growth is at such a stage as to make possible a critical strength condition before the preservative applied to the exterior poles has had time to penetrate. Request HL430.

**PAYSTATIONS—Automatic Electric's new technical bulletin 702-86, covering semi-postpay paystations, type 86, 86-10, 86-55, 96 and 66, has been sent to all holders of the company's *Installers Handbooks*. Extra copies of the 4 inch x 6¾ inch, 32-page insert can be added to the Handbook for ready reference. Request HL432.**

•

**MAX EQUIPMENT—Automatic Electric Co. has also released a new 24-page, 8½ inch x 11 inch technical bulletin on its type 11 and type 20 Metropolitan Automatic Exchange (MAX) equipment. The bulletin, number 306, contains a general description of MAX automatic telephone equipment and is fully illustrated. Request HL433.**

•

**ATTENDANT'S BULLETIN — A new attendant's instructions bulletin, No. 412, prepared to instruct attendants in the proper operation of the type 33A6A PABX attendant's cabinets, has been released by Automatic Electric Co.**

**The 16-page, 5 inch x 7 inch booklets, to be distributed to customer operators as the cabinets are installed, are designed to assist the operating companies in their never-ending measures to improve subscriber relations. Request HL431.**

## General Companies Announce Twelve Personnel Changes

The following personnel changes were announced by General Telephone System's operating companies:

Emmett Swanson, operating vice president of General Telephone Co. of Pennsylvania, will retire on Sept. 1, after more than 27 years in the Independent Telephone Industry.

Mr. Swanson joined the Gary telephone group in 1931, in Chicago, in the securities division, and subsequently was assigned to the general sales office of the Automatic Electric Co. At that time, Automatic Electric Co. was a manufacturing subsidiary of the Gary group.

In January, 1936, he was transferred to Terre Haute, Ind. with the Citizens Independent Telephone Co. In 1938, he joined the Home Telephone & Telegraph Co. at Fort Wayne, later becoming president of the Terre Haute and Fort Wayne companies. Following the merger of the Gary and General interests, in 1955, Mr. Swanson joined the Pennsylvania company.

General Telephone Co. of Pennsylvania elected Herbert W. Meyer vice president, effective Aug. 1. Mr. Meyer has also been elected secretary-treasurer of the company. He served as director of personnel prior to accepting his new assignment.

Charles H. Hess has been appointed director of personnel succeeding Mr. Meyer. Mr. Hess was personnel supervisor prior to his recent appointment.

Effective in August, Fredrick C. Rahdert will become operating vice president of General Telephone Co. of Pennsylvania. He was formerly chief engineer for General Telephone Co. of California.

Dwight E. Zimmerman has been appointed general plant manager at General Telephone Co. of Pennsylvania, effective Sept. 1 At present he is general plant engineer.

Gaylord E. Horton has accepted the position of vice-president, revenue requirements for the General Telephone Co. of Wisconsin, effective Aug 16. He was formerly administrative assistant for General Telephone Co. of Michigan.

William C. Rowland will assume the position of operating vice president of General Telephne Co. of Wisconsin on Sept 1. He is general plant manager of General Telephone Co. of Pennsylvania.

Don L. Schumacher has been appointed director of marketing and merchandising for General Telephone Co. of Wisconsin, effective Aug. 16. Mr. Schumacher was formerly director of public relations and merchandising for General Telephone's Midwest Cos.

John W. May became special studies accountant for General Telephone Co. of the Southeast effective Aug. 16. He formerly served as secretary-treasurer of General Telephone Co. of Pennsylvania.

Also in August, Hans Y. Kraepelien will succeed Mr. Rahdert as chief engineer for General Telephone Co. of California. Mr. Kraepelien has been assigned to the Service Corporation in New York.

Educated in Sweden, Mr. Kraepelien received his engineering degree from the University of Stockholm in 1928, and shortly thereafter joined L. M. Ericsson. After many years of experience with the Ericsson operation, he became president of North Electric Co., Galion, O.

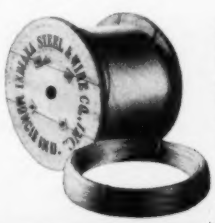
T. S. Lauver was elected secretary-treasurer of General Telephone Co. of Ohio, it was announced on Aug. 5. He relinquishes his position as assistant to the controller of General Telephone Co. of Kentucky.

Leonard W. Snodgrass will become controller of General Telephone Co. of Kentucky, effective Aug. 15. He was formerly assistant controller of General Telephone Co. of Ohio.

Those who design, build and maintain aerial telephone cable lines will find the technical information in this manual both pertinent and useful.

The sag and tension data cover three sizes of "Utilities Grade" strand when used as messenger to support plastic-sheath or lead-sheath cable. These data will be helpful in determining the size of strand to be used for a particular weight of cable and span length, and in answering other questions relating to design problems.

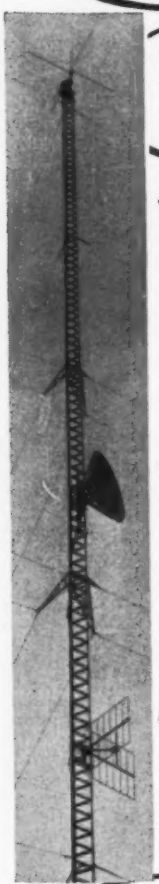
This Manual will be mailed without obligation to all interested telephone men. Ask for Manual No. MS-58.



*Crapo* Galvanized Steel Strand (for both messenger and guys) is available in all standard sizes and grades and in Class A, B and C coatings.

INDIANA
STEEL & WIRE CO., INC.
Muncie, Indiana

If it's TOWERS you need, check ROHN FIRST!



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**√ Reduce Costs**

—by getting a tower *specifically for your* job. These towers are suitable for use up to 300 feet guyed—or self supporting to 50-60 ft.! ROHN towers are in daily use for micro-wave, radio and dozens of all type communications requirements throughout the U. S.—at big savings—yet more than do the job! Can be used for a multitude of jobs.

**√ Proven design**

—get full engineering data to prove superiority. Gleaming, hot-dipped galvanized finish available—stays shiny and new—no painting needed. Design fully tested—proved by thousands of installations. Easily shipped and inexpensively installed. Cross pieces form natural ladder for servicing.

**√ Special Towers**

—you're invited to submit your requirements. Towers will be built to your specifications if practical. Let us know your needs—ROHN can satisfy them BEST when it comes to towers of this type.

*Shown here is a Rohn No. 40 tower guyed to a height of 180 ft., supporting both a 6 ft. micro-wave reflector "dish" and 2-way radio antennae for state public safety agencies.*

**FREE**

Send for new "Specifications & Price" catalog for Rohn Communications Towers. Your inquiry will receive prompt attention. Rohn representatives are coast-to-coast to serve you. Write—phone—wire

**ROHN** *Manufacturing Co.*

**116 Limestone, Bellevue**
**Peoria, Illinois**

"Pioneer Manufacturers of TV and Communication Towers of All Kinds."


# News on New Products

**SALES KIT**—To help the Independent telephone operating company wage a promotion-a-month campaign featuring the advantages of extension telephones in the home, Automatic Electric Co. is making available a new telephone sales kit.

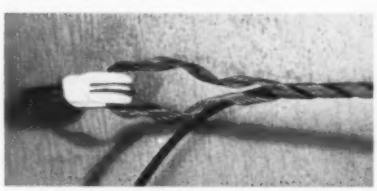
The kit contains 12 separate sales promotions, each keyed to the appropriate seasonal theme, the company states. Each promotion consists of: A press release, written so that it is of news interest in the area served by the telephone company issuing it; copy for a radio commercial and an idea for a window display, plus suggested display card copy.

In addition, the kit contains proofs of 12 newspaper ads, mats of which are available upon request.

A booklet in each kit tells the telephone company how to get results from these merchandising aids. Request NP-938.

•

**DEAD ENDS**—Preformed Line Products Co. stainless steel drop-wire dead-ends are now available for all sizes of telephone drop-wire. They are neoprene-coated to facilitate application and removal and to cushion the gripping action, thereby eliminating abrading or cutting through the insulation. This combination of stainless steel and neoprene gives corrosion resistance for all areas, the company states.



The Preformed principle of distributing uniformly low pressure over a large area eliminates concentrated stress which might damage the wire jacketing.

The multiple-wire loop minimizes bail fatigue. Preformed drop-wire dead-ends are easily applied and removed, according to the company. Request NP939.

•

**TRANSCEIVER** — Collins Radio Co. announced it is marketing a new HF single sideband communication transceiver, the 32RS-1 in two configurations, the cabinet version (32RS-1C) shown above and a rack mounted version (32R-1H).

The 32RS-1 has an output of 100 watts on any one of four pretuned channels in the 1.6 to 12 mc frequency range. The new transceiver features

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Please have the manufacturer send me without obligation the literature indicated by the following numbers:

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NP942_____; NP943_____.

Name..... Title.....

Company.....

Street.....

Town and State.....

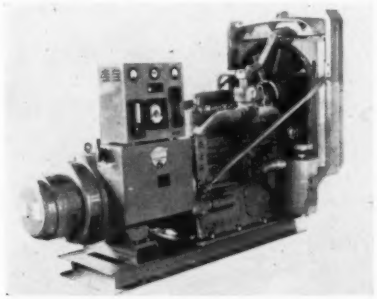
8/16/58

high stability, simplified controls for non-technical operators, voice actuation of transmitter function, automatic load control, compact station packaging and communication and spectrum conservation through the utilization of Collins SSB, the company states.

Accessories available for the 32RS-1 include directional wattmeter, phone patch, antenna coupler and a number of antenna kits. Request NP940.

•

GENERATING SETS — Katolight Corp. has recently announced the addition of a new low cost 125 KW, 156 KVA, 1800 RPM electric gasoline generating set to their standard line. The



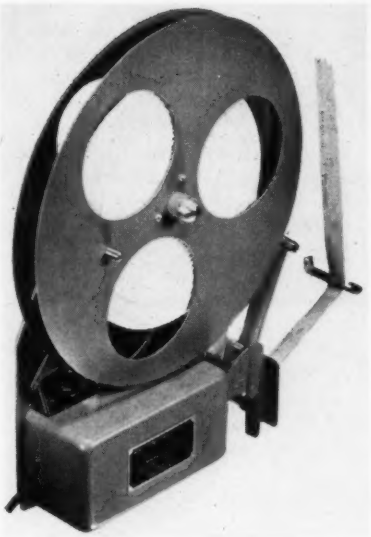
unit is particularly adaptable for standby emergency service, or seasonal continuous duty, according to the company.

The unit incorporates a revolving field type external regulated generator of single bearing design, with ammortisseur windings, and direct connected exciter, directly fastened on a common heavy steel bed plate. It is driven by means of a semi-flexible coupling by a Hercules Model HXE, 6-cylinder, 4-cycle, gasoline engine with a cu. in. disp. of 935.

The engine is also available with natural gas and propane carburetor. Unit can also be obtained in both single and three phase, complete with all the controls and panel equipment that may be desired to meet any specific application, the company states. Portable, diesel, natural gas, and propane models are also available. Request NP941.

•

TAPE WINDER—Western Apparatus Co., a division of Comptometer Corp., has released a teletypewriter tape winder. The tape winder is a motor driven unit with a 12-inch tape reel. The reel is magnetically attached to the winder for easy removal; and the wound tape is easily removed from the reel, the company states. The tightness of the tape wound on the reel is adjustable.



More than 1,300 feet of chadless tape or more than 2,000 feet of fully perforated tape can be wound on the reel. Units may be ordered for handling five, six, seven or eight-level tapes. Request NP942.

•

WORD COUNTER — Western Apparatus Co. has also designed the word counter for use in making message traffic studies on teletypewriter circuits. It operates at 60, 75, and 100 WPM

speeds and at currents of 20 to 60 ma. It has incorporated in it a transistor line relay permitting the unit to be connected directly into the line without inductive effect, the company states. Request NP943.

## Savings Penalized

"Paper-money inflation continues to penalize the pocketbooks of hundreds of millions of Americans. The question is being asked if it pays to save. The paper-dollar is now only worth about 50 cents in terms of what it would buy in 1940. Those who are hurt by inflation include over 100 million holders of life insurance policies, holders of savings deposits, owners of U.S. Savings Bonds, holders of securities of all kinds and holders of pensions."—*Denver (Colo.) Mining Record.*

Whether it's tool belts or safety straps . . . pliers or wrenches . . . grips or climbers, linemen and electricians know they can expect the highest in quality when their equipment carries the name Klein.

For more than a century Klein has been the leader in designing and producing tools and equipment to serve the exacting needs of the utility field.

Today, wherever power lines or communication lines are strung, Klein tools and equipment are in greater demand than ever, assuring safer, speedier line construction and operation.

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A free copy of the new Klein Pocket Tool Guide will be sent on request.

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Foreign Distributor: International Standard Electric Corp., New York

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## Safety Council Publishes Pamphlet, Annual Yearbook

The National Safety Council has published an accordian-fold pamphlet, "Don't Be Alarmed," giving the latest information and advice about fires. It has also published the 1958 edition of "Accident Facts," the Safety Council's statistical yearbook.

The multi-colored pamphlet, "Don't Be Alarmed" points out that fire costs industry countless thousands of dollars each year and takes thousands of lives.

Best protection against fire, the pamphlet states, is a "heads-up" attitude by each employe—a knowledge that fires are caused by carelessness and lack of knowledge. The pamphlet allows cover room for imprinting a firm name.

"Accident Facts" contains facts and figures on all types of accidents—industrial, traffic, motor transportation, home, farm and school.

Several sections of the annual publication are devoted to occupational accidents, and provide a comprehensive background for an industrial safety program.

The book contains a list of accident rates by major industry groups, as well as charts showing the trend of accidents. Other topics listed include most common source of work injuries, part of the body most often injured, off-the-job accident problems, and how unsafe acts and unsafe conditions contribute to permanent impairment and death.

According to the Council, the 96-page book provides ideas and facts for making speeches, writing articles, preparing reports and planning safety campaigns.

Further information on "Don't Be Alarmed" and "Accident Facts" with quantity prices may be obtained from the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

## IEC Releases Three Standards Publications

Three new international standards recommendations covering electrical insulating materials, radio-frequency cables, and printed wiring techniques have become available in the United States through the American Standards Association.

The three standards recommendations are contained in the following publications of the International Electrotechnical Commission (IEC):

Publication 93, Recommended Methods of Test for Volume and Surface Resistivities of Electrical Insulating Materials;

Publication 96-1, Recommendations for Radio-Frequency Cables;

Publication 97, Recommendations for Fundamental Parameters for Printed Wiring Techniques.

IEC Publication 93 is the first of a series of recommendations which are being prepared for standardized methods of testing for the electrical properties of insulating materials.

Part I of the publication gives definitions of the quantities measured, general information on the tests, and minimum requirements for test reports. Part II contains recommendations for shapes of test specimens and electrodes for solid insulating materials, test specimens and cells for liquid insulating materials, electrode materials for solid samples, calculation of volume and surface resistivities, conditioning, applied voltage, mounting specimens, and general principles.

The publication also contains seven figures illustrating the use of various types of electrodes and the circuits to be used for the measurements described.

IEC Publication 96, Part I, covers general requirements and measuring methods for radio-frequency cables. Part II, which will be published later,


PAGE
LASHING WIRE
OF Stainless Steel

You get a neat and long-lasting job every time you use PAGE Stainless Steel Lashing Wire! Ideal for lashing conductor cables (lead or neoprene covered) to a strand messenger by Neale or Western Electric Machine. Coils tailored to fit machine specified.

**3 GRADES • EACH IN 2 SIZES (.065 and .045)**

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Furnished six coils in cardboard carton (minimum order).

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will contain construction details and characteristics. Publication 96 is the second IEC publication to deal with radio-frequency cables. The first one was Publication 78 which lays down values of characteristic impedance and associated diameters.

The materials covered by Publication 96 include flexible and semi-flexible radio-frequency cables of coaxial or twin conductor types with dielectric of solid, air-spaced, or semi-airspaced types of thermoplastic low-loss polymeric resin or thermosetting compound, or mineral material, designed for use in radio-communication equipment and in electronic devices employing similar techniques.

The object of Part I of Publication 96, according to an IEC announcement, is to lay down uniform requirements for judging the electrical, climatic, and mechanical properties of radio-frequency cables and to describe test methods. Part I is divided into the following sections: general, electrical tests, climatic and mechanical robustness tests, and marking.

Like all other IEC publications dealing with components for electronic equipment, Publication 96 is intended for use in conjunction with Publication 68, Basic Climatic and Mechanical Robustness Testing Procedures for Components.

IEC Publication 97 specifies the nominal spacings between the centers of holes used for fixing and connecting the components to the printed wiring board and the nominal diameter of the holes. It also lists preferred thicknesses of the laminated plastic boards used for printed wiring and gives indications concerning components for use with printed wiring.

The International Electrotechnical Commission (IEC) provides the organizational facilities for the development of international standards in the electrical and related fields. IEC standards are not mandatory; they are "recommendations" to the 34 member countries.

United States interest in IEC work is represented through the United States National Committee of IEC, which is an arm of the American Standards Association.

All IEC publications mentioned can be obtained from the American Standards Association, Dept. PR6, 70 East 45th Street, New York 17, N. Y., at the following prices:

| | |
|---|---|
| Publication 93 | $2.40 |
| Publication 96-1 | 3.00 |
| Publication 97 | .80 |
| Publication 68 | 2.80 |
| Publication 78 | 1.60 |


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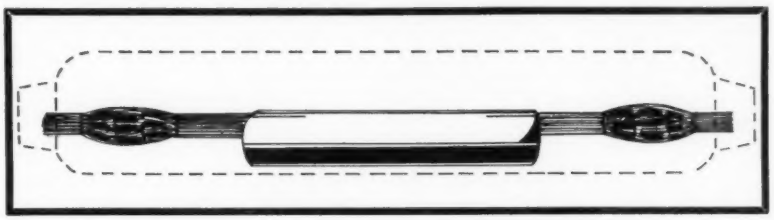
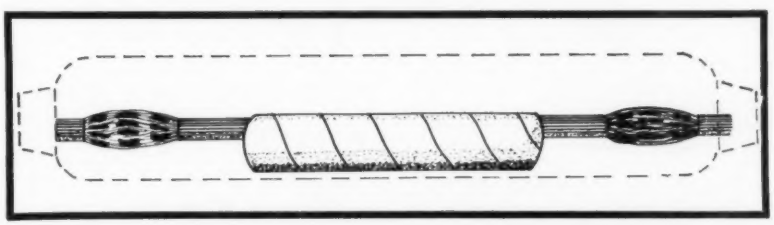
**These assemblies are supplied on a wooden dowel, sometimes called sleeve mounted for use in the cable splice.**



**TYPE 162 FOR MOUNTING IN PLASTIC CABLE SPLICE**

**Type 162 assemblies can be supplied containing from one to 16 coils of either Type 632(88MH) or Type 638(44MH) and are for use in plastic cable splice. Types MF10, MF11, 641 and 642 coils can be furnished for inter office and toll entrance cables.**



**TYPE 167 FOR MOUNTING IN LEAD CABLE SPLICE**

**Type 167 assemblies can be supplied containing from one to 16 coils of either Type 632(88MH) or Type 638(44MH) coils and are for use in lead cable splice. Types MF10, MF11, 641 and 642 coils can be furnished for inter office and toll entrance cables.**

CEECO assemblies give "Life like" voice transmission and reception to your long cable and rural distribution wire circuits. "Life like" telephone transmission is a clear, easily understandable telephone conversation over the necessary frequencies present in the voice to be heard via the telephone in the same volume as in "face to face" conversation. Telephone companies providing such quality service will increase subscribers desire to use "LONG DISTANCE" more often, thus increasing revenue.

***Write us for assistance on your loading problems. CEECO loading coils are sold by your telephone equipment supplier.***

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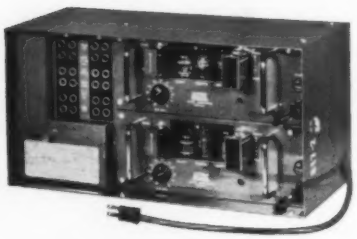

ALTEC S-17B Program Amplifier System

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providing in one frame: Two amplifiers that can be used together or independently. Two line equalizers, adjustable without strapping. Two jack fields—for easier testing, equalizing, monitoring. Self-contained power supply.

Portable or rack-mounted, this easy-to-install, time and money-saving unit replaces up to 10 separate pieces of equipment. The new S-17B provides broadcast quality wide range program channels for radio, FM, TV and wired music. Plug-in amplifiers are easy to inspect, repair or replace.

Thoroughly field tested—60 were used to broadcast the Pasadena Rose Parade and the Rose Bowl Game.

**Weight:** 44 pounds.

**Output Power:** +24 dbm.

**Distortion:** not over ½% THD (30-15,000 CPS at +24 dbm).

**Gain:** at least 44 db; adjustable to minimum of 8 db.

**Equiv. input noise:** —115 dbm.

**Input impedance (internal):** 150/600 ohms ±5%, 30 to 15,000 cps.

**Output impedance (internal):** 150/600 ohms ±5%, 30 to 15,000 cps.

Longitudinal balance of input circuit and output circuit with 600 ohm connection:
55 to 60 db at 40 and 15,000 CPS
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OTP

**Hubbard & Co. electrical research laboratory.**

## Hubbard Opens New Electrical Research Lab

Hubbard & Co. on July 22 formally opened its electrical research laboratory, which is located in McCook, Ill., a suburb southwest of Chicago. The company headquarters is in Chicago.

Located on a seven-acre tract, the laboratory is equipped with facilities for creating, testing and perfecting diverse products for the electric and communication utilities. Realistic appraisals can be made of tests conducted under conditions which are the same as those encountered in the field.

At the dedication of the laboratory officials of the company emphasized the importance of the research service to the telephone industry. Although the opening ceremonies included much in the way of power line protective equipment demonstrations because of the more spectacular aspects of these tests, the standard pole line hardware products definitely will play an important part in the laboratory's future research and development planning.

Facilities for field testing of hardware items used by the telephone industry were included in the tour and typical tests demonstrated. A spokesman for the company stated, "We are providing every possible facility for the production of the best power and communication hardware, the best apparatus, top quality street lighting and railway equipment, and we are devoting equal effort to all."

Virtually every type of transient over-voltage and over-current disturbance on an actual system can be produced in the laboratory and its effect on distirbution systems can be accurately analyzed.

High power testing will be conducted at a specially designed power laboratory, adjacent to the main building, where power is available in a wide range of voltages and currents. A concrete barricade with bullet-proof glass will permit visual observation at close range.

In addition to the high bay, designed to permit operation of the impulse generators at maximum voltage, and the conference room, the main building houses engineering and design facilities, a mechanical testing laboratory, a chemical laboratory, a complete machine shop, and a reference library.

Comprehensive outdoor electrical tests and mechanical tests can be conducted in the outdoor testing area. Poles, structures, and pole line hardware assemblies have been built for test purposes. Sections of power and communication lines also have been erected for test and demonstration purposes.

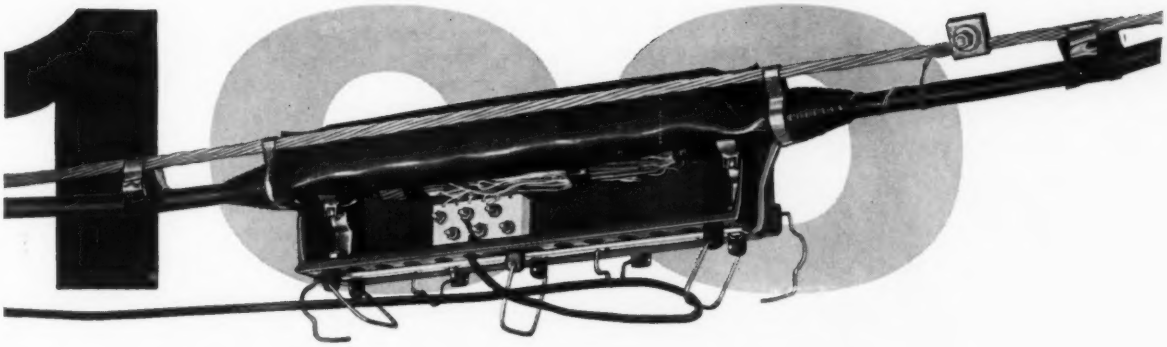
## Ewing, Fisher To Serve Lenkurt as Managers

Promotion of A. G. Ewing to operation manager and W. C. Fisher to marketing manager in the commercial products division of Lenkurt Electric Co. was announced on July 2.

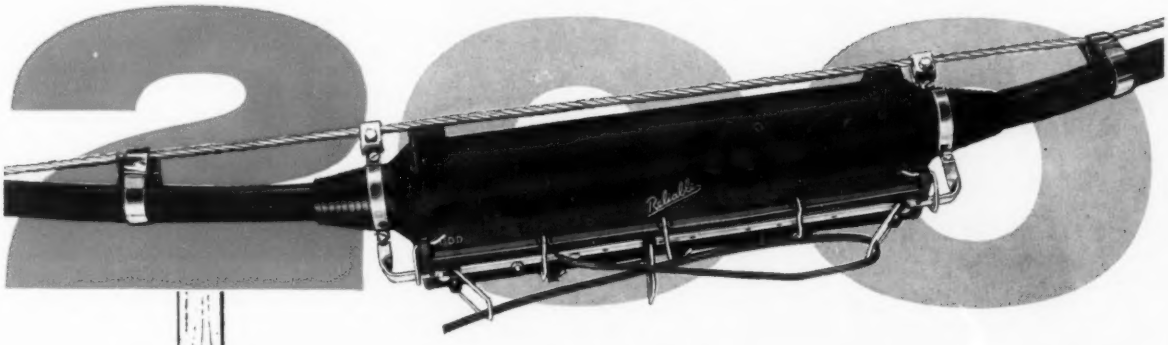
**A. G. EWING**

The commercial products division, largest of Lenkurt's five operating divisions, is responsible for all customers in the United States except government agencies.

Mr. Ewing, who formerly headed




# Reliable ready-access terminals . . .




## now in two sizes for cables up to 2.2″ in diameter

Reliable now offers Ready-Access Cable Terminals in two sizes for use with plastic jacketed, plastic insulated cables.

**Catalog Series 100** – for cable up to 1.2″ O.D.

**Catalog Series 200** – for cable from 1.0″ to 2.2″ O.D.

Catalog Series 100 and 200 units are easily installed and easily maintained terminal and splicing facilities. Up to four 6-pair Reliable Catalog No. 105 Terminal Blocks can be added to both Series Terminals, or the space can be used for loading coils. The flexible neoprene cover is conveniently folded back, as in upper illustration, while internal wiring is altered to meet changing requirements.

You will get interesting details by writing for Product Data Sheet No. 17, featuring Ready-Access Cable Terminals.

Reliable

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**TELE-MUFF Jr.**

*The Head Set Ear Cushion*
**Designed Especially for Switchboard Operators**

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**Thanks for your splendid response. All orders being shipped promptly.**

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production engineering, will be responsible for all manufacturing and engineering activities in his new position.

He joined Lenkurt in 1951 as an industrial engineer and a year later became manager of mechanical engineering. Previously he was with Western Electric Co. 12 years and served three years with the Marine Corps during World War II. An alumnus of San Francisco City College, he is a member of the American Management Association.

**W. C. FISHER**

Mr. Fisher has been sales manager of Lenkurt the past year, and before that was export manager. He has held other managerial positions in sales since joining the electronics firm in 1952.

Mr. Fisher formerly was vice president of Norwesto Communications in Kenora, Ontario. He was with RCA Victor in Canada from 1939 to 1950 except for five years of wartime service with the Royal Canadian Air Force.

He received the B. S. and M. S. degrees from the University of Saskatchewan and did graduate study at Purdue University. He is a senior member of the Institute of Radio Engineers and a member of the American Institute of Electrical Engineers.

## Attacks Freedom of Speech

"Hard-to-understand government actions frequently result in the United States taking sideswipes at the very spirit of private enterprise which it so piously fosters in voice and print. Typical is a little-publicized but significant ruling by the Bureau of Internal Revenue which disallows certain advertising expenditures made by a privately-managed public utility company, a ruling vigorously protested and now under test in the courts in the form of a suit filed by an affected company. The outcome of the case can indeed be far-reaching, and, in the opinion of many, result in a definite curb on a basic freedom, freedom of speech." — Eloy (Ariz.) *Enterprise.*

## Glass Houses

"Do you never look at yourself when you abuse another person?"—PLAUTUS.

**Noble de Roin, president of the International Advertising Co. of Denver, Colo., actually goes out on telephone plant jobs to do copy research for his telephone industry accounts. For two years he has been climbing poles, exploring manholes, dodging booms, and otherwise exposing himself to the rigors of installation work to get telephone industry advertising copy appeals. Here Mr. de Roin appears out of a manhole while he was getting photos for one account he handles—Morrison-Pelsue Co. of Denver, manufacturers of ventilating and heating units for manholes and underground work, propane tent heaters, carburetor conversion kits and transformer hoists.**

## H. J. Poplis Named C&D Cincinnati Office Head

C&D Batteries, Inc., has named Power Operated Products, headed by Harvey J. Poplis, as the sales and service organization for C&D in Cincinnati, O. Henry E. Jensen, vice president in charge of marketing for the Conshohocken, Pa., battery firm, announced the appointment.

H. J. POPLIS

Mr. Poplis opened the Cincinnati company following six years of service in the battery and charger division of C&D's Chicago office. In serving C&D customers in southern Ohio, southern Indiana, and Kentucky, Mr. Poplis will be assisted by Eugene M. Schwartz, who has been covering the same territory under the direction of C&D's Cleveland office.

Previous to joining C&D's Chicago office, Mr. Poplis was an office manager and sales engineer for U. S. Electrical Motors Inc. Earlier he was a service engineer with Monarch Marking System, Inc.

Mr. Poplis served as a navigator in the U. S. Air Force for three years. He received his education at Love Technical High School, Northwestern University, and Illinois Institute of Technology. His memberships include the Association of Iron & Steel Engineers, and the American Materials Handling Society.

## Time for Expansion

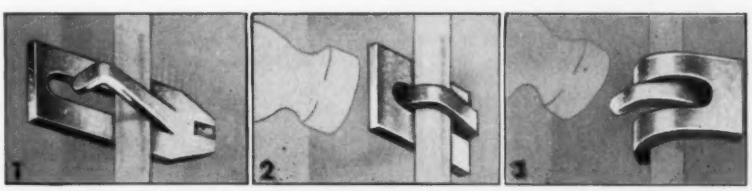
"Now is the time for industrialists to build. There are no shortages of materials and there is more financial credit. . . . Companies which take advantage of these times to expand, will have competitive and productive advantages when consumer demand increases."—ROGER M. BLOUGH, *chairman of the board, United States Steel Corp.*


eliminates radio interference

KEARNEY NON-STATIC GROUND WIRE CLIP

When ordinary staples lose their hold in wood, contact pressure drops, and resultant air-gap static causes radio and television interference. KEARNEY Non-Static Ground Wire Clips prevent this interference by maintaining permanent, high pressure contact with ground wires, entirely independent of how tightly the clip is set in the pole.

When this clip is driven, a hook automatically, permanently grips the wire, remaining free of all trouble-causing air gaps. Inexpensive and easy to drive, this clip holds fast in all woods.




**Easy to install:** Just drive clip until point seats firmly in wood. Insert ground wire under hook, then drive until hook grips wire and starts protruding through slot in body. Bend end of clip over the wire and into the wood.

-358

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## J. M. Coffin, M. H. Kebby Named Managers for Lenkurt

John M. Coffin has been promoted to production engineering manager and Maurice H. Kebby to product development manager in Lenkurt Electric Co.'s commercial products division, San Carlos, Cal.

M. H. KEBBY

In his new position, Mr. Coffin will be responsible for design and development of all new mechanized processes

J. M. COFFIN

and new machines, tools, and production aids. He previously headed process research, a section of production engineering.

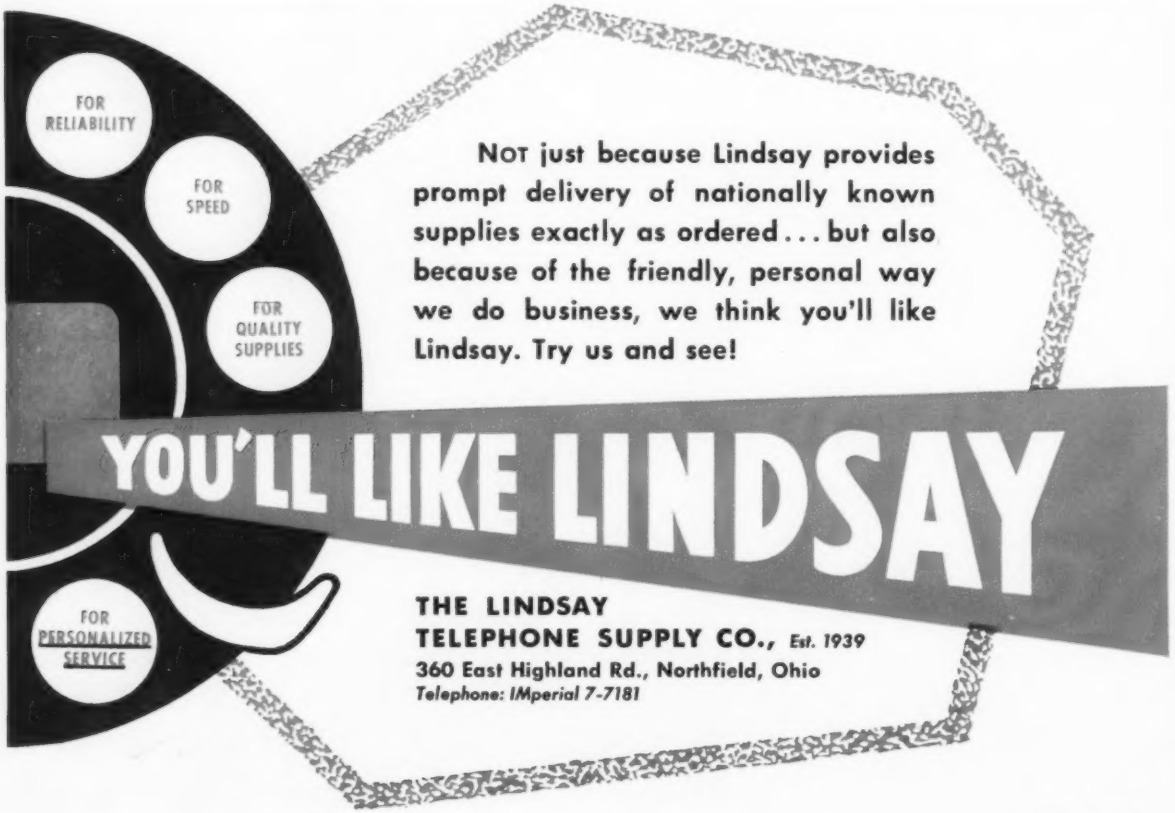
Mr. Coffin joined Lenkurt as an industrial engineer in 1955 after many years in manufacturing, engineering and engineering supervisory positions. During World War II, he served as a lieutenant colonel in the U. S. Army Field Artillery. He has a B.S. degree in Mechanical Engineering from Stanford University and also attended Harvard Business School.

As product development manager, Mr. Kebby will direct development, engineering and quality control of communications systems and components produced by the commercial products division. He joined Lenkurt in 1951 and has directed development of Lenkurt carrier and microwave radio systems.

Mr. Kebby's engineering experience began with Mackay Radio & Telegraph Co. He served as a lieutenant on active duty with the U. S. Navy for five years. Kebby attended San Jose State College and Stanford University, where he received his B.S. degree in Electrical Engineering. He is a member of the Institute of Radio Engineers and the American Institute of Electrical Engineers.

## General Bayer Promoted By Stromberg-Carlson

Brigadier General William L. Bayer, United States Army, retired, has been appointed director of planning of the electronics division of Stromberg-Carlson, according to an announcement by George A. Peck, vice president and general manager of the division. Stromberg-Carlson is a division of General Dynamics Corp. In his new position,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FOR SPEED
FOR QUALITY SUPPLIES
FOR PERSONALIZED SERVICE
NOT just because Lindsay provides prompt delivery of nationally known supplies exactly as ordered... but also because of the friendly, personal way we do business, we think you'll like Lindsay. Try us and see!
YOU'LL LIKE LINDSAY
THE LINDSAY TELEPHONE SUPPLY CO., Est. 1939
360 East Highland Rd., Northfield, Ohio
Telephone: IMperial 7-7181

General Bayer will plan the future growth and new products of the electronics division.

A native of New York City, General Bayer attended Haverford College prior to his appointment in 1922 to the U. S. Military Academy, from which he received a Bachelor of Science degree. Subsequently he did graduate work at Yale University, and received a Master of Science degree in Communication Engineering in 1927.

General Bayer served with the Signal Corps for 30 years, from his graduation from the U. S. Military Academy in 1926 until his retirement in 1956. He joined Stromberg-Carlson in 1957.

## K. C. Gillette Joins Communication Equipment

K. C. Gillette has been appointed sales manager for the telephone division of the Communication Equipment & Engineering Co., Chicago, according

K. C. GILLETTE

to R. A. Clark Jr., company president.

He will be responsible for all matters pertaining to products manufactured for the telephone industry.

Mr. Gillette has been associated with the Independent Telephone Industry for about 25 years. His former association was with Ansonia Wire & Cable Co., as telephone cable specialist.

## Lifeblood of Democracy

"Nothing is more dangerous than this notion that economic salvation lies through government intercession. Government did not keep us from getting into our present condition. How can we rely upon it to get us out of it? Let us not turn always to the government for succor, but remember that a free government depends always upon the people for sustenance."—BERNARD M. BARUCH, *financier*.


WHITNEY BLAKE

NYLON JACKETED

ABRASION RESISTANT

TELEFRAME®

JUMPER AND DUCT WIRE

FOR EASY HANDLING

**TELEFRAME Jumper and Duct Wire has these many added advantages:**

- Excellent resistance to abrasion.
- Easy to pull even through old corroded ducts.
- High compression strength.
- Unaffected by humidity.
- Superior insulation resistance.
- Non-fading color coding.
- Cannot fray.

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NOW a Complete program
to Train Telephone Technicians!
For Individuals or
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BY HOME STUDY OR IN RESIDENCE PROGRAM
UNIQUE Training Plan developed in collaboration with major American telephone companies and telephone equipment manufacturers who recognized the need for such a training program for many years. TTI offers complete training from basic electricity and radio theory through advanced telephone carrier techniques.
PERFECTED IN USE
The TTI program has been tested and perfected by telephone men . . . used by communications companies to train plant engineers and installation technicians . . . many had no previous electronic experience. TTI training fully qualified them to install, operate and maintain telephone equipment.
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SAFE DRY CLEANER
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A safe effective substitute for Carbon Tetrachloride
- Chlorothene is an excellent solvent for cleaning metals contaminated with greases, oils, tars and waxes.
- Chlorothene is especially suitable for cold-cleaning, dip-cleaning and bucket-cleaning operations.
- Chlorothene does not corrode aluminum or aluminum alloys under ordinary conditions.
- Chlorothene is the answer to the search for a cold cleaning solvent that eliminates fire hazard that equals carbon "tet" in cleaning power and yet is only 1/20th as toxic. Chlorothene has no flash point—no fire point. Chlorothene permits cleaning of common metals, including aluminum with relative safety from corrosion.

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## K. W. Graybill Retires from Automatic After 38 years

Kenneth W. Graybill, General Telephone Laboratories consultant, and former vice president in charge of research of Automatic Electric Co., has retired after more than 38 years with these manufacturing and research subsidiaries of the General Telephone system.

Born in Secor, Ill., Mr. Graybill served in the army in World War 1, and then Joined Automatic Electric in 1920.

After completing the company's student training course, he was assigned to engineering inspection. He studied electrical engineering at night, and worked at his engineering job during the day. In 1927 he was placed in charge of the engineering inspection department and then transferred to the Associated Electric Laboratories where in 1937 he became a vice president.

He was named chief engineer of Automatic Electric in 1938, and in 1950 was elected vice president in charge of research for Automatic Electric Co., and president of the laboratories organization. In 1956 he relinquished these positions for reasons of health, but remained as a consultant. He was succeeded by Robert M. Wopat who is the present president of General Telephone Laboratories.

During his career, Mr. Graybill became widely known both in the United States and abroad as an authority on Automatic switching systems, relays, and telephone transmission, and has had a number of patents issued to him.

The Strowger Automatic Club, an employe organization, presented him with its annual Talbot G. Martin award in 1948 for his contributions to the art and science of communication. He is a Fellow of the American Institute of Electrical Engineers, the American Association for the Advancement of Science, and the Western Society of Engineers.

K. W. GRAYBILL

## Exide Creates Field Sales Manager Position

Robert J. Muth, former Los Angeles branch sales manager for Exide Industrial Division of The Electric Storage Battery Co., has been transferred to the company's Philadelphia headquarters as field sales manager.

In the newly created position under Exide's sales manager, Mr. Muth will be responsible for all branch operations in the United States. This encompasses 16 regions with industrial battery sales and service facilities in 41 principal cities.

R. J. MUTH

Mr. Muth has been branch manager in the southern California-Arizona-western New Mexico-southwestern Texas area since 1943. Prior to that, he spent 21 years as a salesman for Exide industrial and automotive batteries in Denver.

His career with Exide began in 1922, immediately following his graduation from the University of Colorado with a bachelor's diploma in commerce. A native of Denver, Mr. Muth attended the Logan School and was graduated from West High School in 1918.

## E. E. Fennema Promoted At Automatic Electric

Edward E. Fennema, formerly warehouse supervisor of the supply sales department of Automatic Electric Sales Corp. has been named manager of supply sales operations. His appointment fills the vacancy left by the retirement of George L. Ferguson.

A native of Vesper, Wis., Mr. Fen-

# *To prevent pole and power line leaning...*

*guy with*

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**High in Quality.** CF&I carefully controls every stage of production, from the making of the steel through the drawing, galvanizing and stranding of the wire.

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**Safe.** CF&I Strand meets or exceeds ASTM Specifications A-122 or A-363; or can be made to customer specifications.

**Easy to Work.** CF&I Strand is extremely ductile. It handles easily and helps linemen do better installation jobs.

Next time you need strand—for guy wire, messenger wire or overhead ground wire—be sure to investigate the advantages of CF&I Galvanized Steel Strand. Your nearby CF&I representative or local electrical distributor will give you full details. 5734

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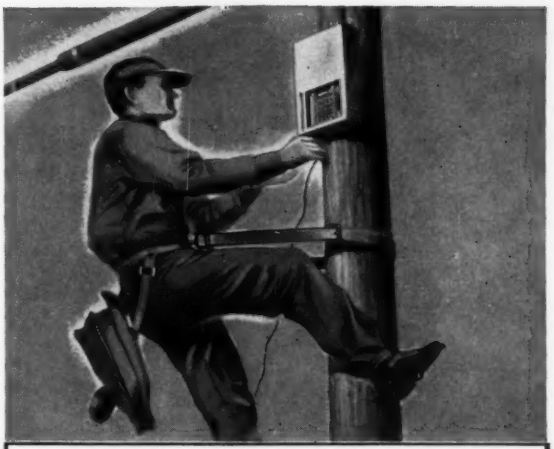

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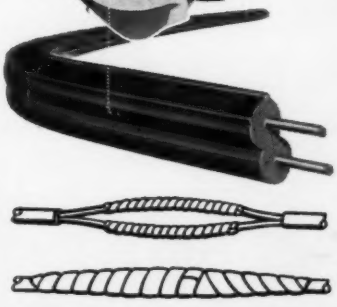

**PARALLEL DROP WIRE SPLICE**

- Wrap with a single half-lapped layer of Bi-Seal Type 2A
- Tension Tape approx. 3/4 original width. Extend tape 1/2" beyond sleeve
- Completed Splice
- Write for copies of Bi-Seal Splicing Methods, Specification BM-1

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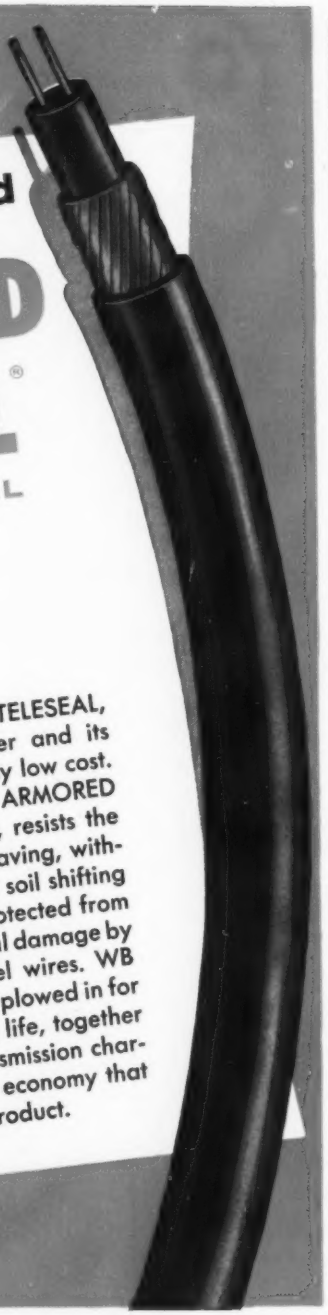


WB

3-8

WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

WELL BUILT WIRES SINCE 1899

INDEPENDENT

E. E. FENNEMA

nema was educated in Chicago public and parochial schools. He joined Automatic Electric in 1920, as a stock records clerk. From 1928 to 1932, he served as assistant to the production manager of American Automatic Electric Co., the former American Electric Co. just then acquired by AE.

Transferred back to Automatic Electric in 1932, he was placed in charge of the supply stock room where he remained until 1939 when he returned to the production department as stock record and order analyst.

In 1947, he was named buyer in the supply department, and the following year became supervisor, in which capacity he was responsible for the department's Chicago warehouse and inventory control of the branch warehouses. Mr. Fennema retained this post until his current appointment.

## Key to Enterprise

Property should be in a certain sense common, but, as a general rule, private; for, when every one has a distinct interest, men will not complain of one another, and they will make more progress, because every one will be attending to his own business. . . . And further, there is the greatest pleasure in doing a kindness or service to friends or guests or companions, which can only be rendered when a man has private property. . . . No one, when men have all things in common, will any longer set an example of liberality or do any liberal action; for liberality consists in the use which is made of property.—ARISTOTLE, *Politics*.

## Choose Right . . . Stay Right

Stand with anybody that stands right. Stand with him while he is right, and part with him when he goes wrong. —ABRAHAM LINCOLN.

## Du Pont to Make Silicon Under Exclusive Rights

A license agreement for the Du Pont Co. to manufacture and sell a new grade of ultra-high-purity silicon under a process developed by the International Telephone & Telegraph Corp. (IT&T) has been signed, it was announced recently.

Under the agreement between Du Pont and IT&T, the former has exclusive rights to make and sell the new material in the United States and Canada for a 10-year period. The new process was developed by Standard Telecommunication Laboratories, Ltd., of London, Eng., an IT&T affiliate.

The new grade of silicon will meet a need in the electronics industry for material of exceptional purity to be used in the manufacture of such components as high-voltage rectifiers and power transistors.

It will supplement Du Pont's present line of three grades of silicon for semiconductor devices and a fourth grade for solar-cell applications.

In purity, the new grade is expected to surpass all types of silicon presently commercially available. Present silicon grades manufactured by Du Pont contain impurities measured in a few parts per billion.

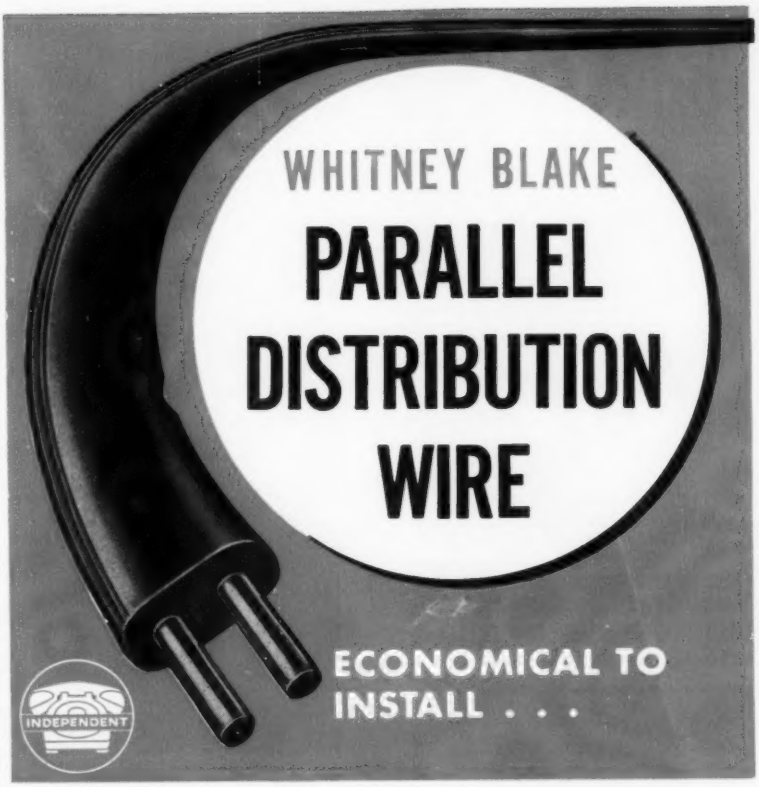
## Aluminum Specialist Named by Chase Company

The appointment of Ralph E. Herzler Jr. of Naperville, Ill., as aluminum specialist for Chase Brass & Copper Co., a subsidiary of Kennecott Copper Corp. was announced recently by W. E. Evans, general sales manager for the brass company. Mr. Herzler joins Chase after 18 years in the aluminum business and for the time being will make his headquarters in Chase's Chicago office.

His first assignment will be to initiate the over-all Chase aluminum program in the Chicago area, and to assist other mid-western districts in the development of their rerolling plans. Earlier this year, Chase announced its association with Kaiser Aluminum for selling certain aluminum products and for rerolling aluminum sheet in its brass mills.

Mr. Herzler was associated with Aluminum Co. of America from 1940 to 1945, following his graduation from the University of Illinois, where he received a B.S. degree, with honors, in metallurgical engineering.

He joined the Reynolds Metals Co. in 1946, first as supervisor of a manufacturing department, and for the past 11 years in sales. His most recent position there was that of regional sales manager for the industrial parts division.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WB Parallel Distribution Wire is made to the same high standards of quality that have maintained Whitney Blake leadership in the Independent Telephone Industry.

WB

4-8

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## Telephone Pioneers To Hold Assembly in Chicago

The Telephone Pioneers of America—an organization of 194,000 telephone employes with 21 or more years of service—will hold its annual assembly meeting in Chicago on Sept. 16 to 18. Nearly 2,000 delegates and guests are expected to attend the regular assembly sessions.

W. V. KAHLER

William V. Kahler, president of Illinois Bell Telephone Co., is national president of the Pioneers.

Highlight of the meeting will be a "Pioneer Night" on Sept. 17 in the Chicago Stadium. About 15,000 people are expected to attend the "Pioneer Night," including Gov. William G. Stratton of Illinois. Lawrence Welk and his entire television show will entertain; including the Lennon Sisters and Vocalist Alice Lon. Speakers will include Arthur B. Goetze, president of Western Electric Co.; Frederick R. Kappel, president of American Telephone & Telegraph Co., and Governor Stratton and Mr. Kahler.

Mayor Richard J. Daley of Chicago will attend a luncheon on Sept. 16, officially opening the assembly.

The Pioneers, world's largest social industrial organization, has members in every state in the union and every province of Canada. They are widely known for their community activities and work among sick and retired members.

"Community Service Activities" will be the theme of the general assembly meetings at the Conrad Hilton Hotel. The assembly will feature seminars, which emphasize how Telephone Pioneers contribute to the well-being of their communities, and business conferences.

## Defense Needs Railroads

"In a defense emergency, the railroads would be the aorta of the national transport system," says a recent article in the *Washington (D.C.) Daily News*. Commenting on the railroad's present plight, the *Industrial News Review* says that "the railroads must be allowed to make the most of their inherent advantages, in rate-making and in other ways. . . . Unless Congress and the states move, a railroad catastrophe is inevitable. And that would be a national catastrophe of the worst kind."


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International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

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International Paper Co., Wood Preserving Division, Sales—926 Grand Avenue, Kansas City, Mo.—Pressure-treated Southern Pine and Douglas Fir Poles. Creosote and Penta preservatives.

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Montana Pole & Treating Plant—Box 2004, Butte, Montana. Penta-Pressure treated Lodgepole Pine and Western Larch Poles. Inquiries invited.

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Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

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*Western Electric* #302, with F-1 handset, 5-H dial Ringers: St. line, Synchromonic 16, 30, 42, 54, 66 cycle—Ready for service—immediate delivery **$12.50**

#302, as above, equipped with F-4 handset with T-1 transmitter—U-1 receiver (500 type) $15.00

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*A.E. type 40*, St. line, 16, 30, 42, 54, 66 cycle ringers. With #24 or later type dial (fully reconditioned) $12.50

*(coiled handset cords, add 50 cents)*

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# Index to ADVERTISERS


| | Page |
|---|---|
| Acme Visible Records, Inc. | — |
| Airtronics International Corporation | — |
| Alphaduct Wire & Cable Co., The | 42 |
| Altec Lansing Corp. | 64 |
| Aluminum Company of America | — |
| American Chain & Cable Co., Inc. Page Steel & Wire Div. | 62 |
| Wright Hoist Div. | — |
| American Creosoting Corporation | — |
| American Electrical Heater Co. | — |
| American Steel & Wire Co. | 29 |
| American Telephone & Telegraph Co. | 50-51 |
| Amplifier Corp. of America | — |
| Anaconda Wire & Cable Co. | 32-33 |
| Ansonia Wire & Cable Co., The | — |
| Atlantic Creosoting Co., The | 75 |
| Automatic Electric Sales Corp. | 12-13, 40-41 |
| Bakelite Company | — |
| Baker Wood Preserving Co. | — |
| Barber Advertising Specialties, Walt | — |
| Barber-Greene Co. | — |
| Bartlett Tree Experts | — |
| Bashlin Company, W. M. | 57 |
| Bell Telephone Laboratories, Inc. | — |
| Benner-Nawman, Inc. | — |
| Berry & Co., L. M. | — |
| Bethlehem Steel Co. | — |
| Biddle Co., James G. | — |
| Bishop Manufacturing Corp. | 71 |
| Blaw-Knox Company | — |
| Bock Construction Co., Inc., E. A. | 75 |
| British Insulated Callenders' Cables, Ltd. | — |
| Brown Company | — |
| Brown Manufacturing Co. | — |
| Buchart Associates | — |
| Buckeye Telephone & Supply Co. | 76 |
| Burgess Manning Company | — |
| Burroughs Corp. | — |
| C&D Batteries, Inc. | 43 |
| Cabaniss-Pogue Co. | 75 |
| Cable Construction Co. | 74 |
| Cable Spinning Equipment Co. | 56 |
| Calculagraph Company | 79 |
| Chance Co., A. B. | — |
| Chase Brass & Copper Co. | — |
| Cleveland Inst. of Radio Electronics | — |
| Collins Radio Co. | — |
| Colorado Fuel & Iron Co., The | 71 |
| Commercial Cord and Supply Co. | — |
| Communication Equipment & Engineering Co. | 63 |
| Consolidated Electrodynamics Corp. | — |
| Cook Electric Company | — |
| Copperweld Steel Co. | 16 |
| Crane, Inc., Carl C. | 75 |
| Cushman Motor Works, Inc. | — |
| Davis Construction Co. | — |
| Diamond Expansion Bolt Co., Inc. | 54 |
| Donnelley & Sons, R. R. | — |
| Duo-Safety Ladder Corp. | 53 |
| Du Pont de Nemours & Co., E. I. | — |
| Electric Specialty Co. | — |
| Engineering Associates, Inc. | 75 |
| Engineers Tool Co. | — |
| Everstick Anchor Co. | — |
| Exide Industrial Division— The Electric Storage Battery Co. | — |
| Fitchburg Engineering Corporation | 74 |
| Foley Construction Co., Robert E. | 74 |
| Gagne Enterprises, Inc. | 14-15 |
| General Cable Corporation | — |
| General Insulated Wire Works, Inc. | — |
| General Machine Products Co., Inc. | 52 |
| General Telephone Directory Co. | Back Cover |
| Gladwin Plastics, Inc. | — |
| Goodrich Chemical Co., B. F., The | — |
| Gould-National Batteries, Inc. | 18 |
| Graybar Electric Co. | — |
| Greenlee Tool Co. | — |
| Haley & Co., R. G. | — |
| Harris McBurney Company | 75 |
| Henkels & McCoy | 75 |
| Highway Trailer Company | — |
| Hirsch Organization, Inc., Gustav | — |
| Holan Corp. | — |
| Holub Industries, Inc. | — |
| Indiana Steel & Wire Co. | 59 |
| Ingram-Richardson Mfg. Co. | — |
| International Business Machines Corp. | — |
| International Harvester Company | — |
| International Telephone & Telegraph Co. | — |
| Irwin Auger Bit Co. | — |
| Johns-Manville | — |
| Justrite Mfg. Co. | — |
| Kander & Company, Allen | — |
| Kearney Co., Jas. J. | 67 |
| Kellogg Switchboard & Supply Co. | 6-7, 38-39 |
| Kennecott Wire & Cable Co. | — |
| Killoren Company | 75 |
| Klein & Son, Mathias | 61 |
| Kleinschmidt Laboratories, Inc. | — |
| Koiled Kords, Inc. | — |
| Koppers Co., Inc. Tar Products Div. | — |
| Wood Preserving Div. | — |
| Leich Sales Corporation | 10-11 |
| Lindsay Telephone Supply Co. | 68 |
| Line Equipment Sales | 75 |
| Lorain Products Corp., The | 9 |
| Loris Sales | 75 |
| Lynch Carrier Systems, The | — |
| Magnolia Chemical Company, Inc. | 70 |
| Malleable Iron Fittings Co. | — |
| McCabe-Powers Auto Body Co. | 47 |
| McGrath Engineering, Inc. | 75 |
| Monsanto Chemical Co.— Plastics Div. | — |
| Morrison-Pelsue Co. | — |
| Mullen Construction Co. | 74 |
| Murphy Engineering Laboratories | — |
| Natco Corporation | 74 |
| National Electric Products Corp. | — |
| National Pole & Treating Div. | — |
| National Standard Co. | 31 |
| National Telephone Supply Co. | — |
| Neubauer Manufacturing Co. | 58 |
| Neuses, Inc., P. K. | — |
| North Electric Company | — |
| Onan & Sons, D. W. | — |
| Orangeburg Manufacturing Co., Inc. | — |
| Owens-Illinois | — |
| Page & Hill, Inc. | — |
| Page Steel & Wire Div. American Chain & Cable Co. | 62 |
| Parker, W. H. | 77 |
| Phelps Dodge Copper Products Corp. | 4-5 |
| Piedmont Wood Preserving Co. | 66 |
| Porcelain Products, Inc. | — |
| Porter, Inc., H. K. | — |
| Preformed Line Products Co. | 35 |
| Radio Engineering Products, Ltd. | — |
| Radio Frequency Laboratories, Inc. | — |
| Ramset Fastening System | — |
| Rawlplug Company, The | — |
| Raytheon Mfg. Company | 17 |
| Recordak Corp. | 45 |
| Reichhold Chemicals, Inc. | — |
| Reilly Tar & Chemical Corp. | — |
| Reliable Electric Company | 65 |
| Remington Rand Div. | — |
| Rex Corporation, The | 37 |
| Reynolds Metals Company | — |
| Rohn Manufacturing Co. | 60 |
| Rolatape, Inc. | — |
| Runzel Cord & Wire Co. | — |
| S & G Manufacturing Corp. | — |
| Schauer Mfg. Co. | — |
| Sierra Electronics Corp. | — |
| Sig Supply Co. | — |
| Sloan, Cook & Lowe Co. | 75 |
| Stainless, Inc. | — |
| Stampings, Inc. | — |
| Stewart Bros. | — |
| Stromberg-Carlson Co. | 2-3 |
| Superior Cable Corporation | — |
| Suttle Equipment Corporation | 75 |
| Taylor-Colquitt Co., The | — |
| Telectric Co. | 77 |
| T.E.I. Corp. | 75 |
| Tele-Muff Co. | 66 |
| Telephone Construction, Inc. | 74 |
| Telephone Training Institute | 70 |
| Teletype Corp. | — |
| Tele-Wire Supply Co., Inc. | — |
| Telkor, Inc. | — |
| Templeton, Kenly & Co. | — |
| Thornhill Publishing Co. | — |
| Transandean Associates, Inc. | — |
| Tudor & Yager, Inc. | 74 |
| United Electric Controls Co. | — |
| U. S. Cable Construction, Inc. | — |
| United States Independent Telephone Association | — |
| U. S. Industrial Chemicals Co. | — |
| United States Instrument Corp. | — |
| United States Motors Corp. | 55 |
| United States Steel Corp. American Steel & Wire Co. | 29 |
| Creosote Division | — |
| Universal Controls Corp. | 27 |
| Utica Drop Forge & Steel Div. | — |
| Utility Body Co. | — |
| Utility Tool & Body Co. | — |
| Weikel Line Company | 75 |
| Western Electric Co. | — |
| Whitney-Blake Co. | 69, 72, 73 |
| Wickwire Spencer Steel Div. of CF&I | 71 |
| Williams Inspection Co., Inc., A. W. | 75 |
| Wiremold Co., The | — |
| Woodings-Verona Tool Works | 49 |
| Wyoming Valley Equipment Div. | — |
| Yates Construction Co. | 74 |
| York-Hoover Corporation | — |



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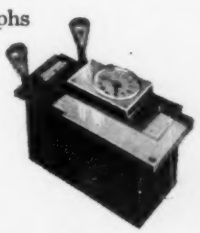

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